#### **BEFORE THE**

#### PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA DOCKET NO. 2004-357-W/S

EXHIBIT (Consisting of 12 Schedules)

TO ACCOMPANY THE

PREPARED DIRECT TESTIMONY

OF

PAULINE M. AHERN, CRRA
VICE PRESIDENT
AUS CONSULTANTS - UTILITY SERVICES

ON BEHALF OF CAROLINA WATER SERVICE, INC.

CONCERNING
FAIR RATE OF RETURN

**APRIL 2005** 

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## Carolina Water Service, Inc. Summary of Cost of Capital and Fair Rate of Return Based on the Actual Consolidated Capital Structure of Utilities, Inc. at December 31, 2003

Type of Capital	Ratios (1)	Cost Rate	Weighted (	Cost Rate
Total Debt	59.23 %	7.28% (1)	4.31%	4.31%
Common Equity	40.77	11.40% - 11.50% (2)	4.65%	4.69%
Total	100.00 %		<u>8.96%</u> -	9.00%

<sup>(1)</sup> From Exhibit B, Page 5 of the Application of Carolina Water Service, Inc. for adjustment of rates and charges for the provision of water and sewer service and modification of rate schedules.

<sup>(2)</sup> Based upon informed judgment from the entire study, the principal results of which are summarized on page 2 of this Schedule.

#### Carolina Water Service, Inc. Brief Summary of Common Equity Cost Rate

No.	Principal Methods	Proxy Group of Six AUS Utility Reports Water Companies	Proxy Group of Three Value Line (Standard Edition) Water Companies
140.	1 micipal methods		
1.	Discounted Cash Flow Model (DCF) (1)	10.6 %	10.8 %
2.	Risk Premium Model (RPM) (2)	10.6	10.8
3.	Capital Asset Pricing Model (CAPM) (3)	10.2	10.4
4.	Comparable Earnings Model (CEM) (4)	14.5	14.4
5.	Indicated Range of Common Equity Cost Rate before Adjustment for Investment Risk	10 90 % -	- 11.00 %
6.	Investment Risk Adjustment (5)	0.50	0.50
7.	Recommended Range of Common Equity Cost Rate after Adjustment for Investment Risk	<u>11.40</u> % -	- <u>11.50</u> %

- Notes: (1) From Schedule PMA-6
  - (2) From page 1 of Schedule PMA-10.
  - (3) From page 1 Schedule PMA-11.
  - (4) From page 2 and 4 of Schedule PMA-12.
  - (5) Investment risk adjustment to reflect Carolina Water Service, Inc.'s greater investment risk due to its small size vis-à-vis each proxy group as detailed in Ms. Ahern's direct testimony.

## <u>Carolina Water Service, Inc.</u> Derivation of Investment Risk Adjustment Based upon Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

1

<u>2</u>

<u>3</u>

4

<u>5</u>

Line N	o	 al Capitalization Debt) for the millions )	(incl. Short-Term Year 2003 (times larger)		 ket Capitaliza 2004 millions )	tion on March 28, 4 (1) (times larger)	Applicable Decile of the NYSE/AMEX/ NASDAQ	Applicable Size Premium		Spread from Applicable Size Premium (2)
1.	Carolina Water Service, Inc.  Based upon the Proxy Group of Six AUS Utility Reports	\$ 34.118 (3)	•							
Α.	Water Companies				\$ 30,825		10 (4)	6.41%	(5)	
В.	Based upon the Proxy Group of Three Value Line (Standard Edition) Water Companies				\$ 31.580		10 (4)	6.41%	(5)	
2.								/	(0)	4.050/
	Proxy Group of Six AUS Utility Reports Water Companies	\$ 502.690 (6)	) 14.7	X	\$ 623.771	20.2 ×	8 (7)	2.36%	(8)	4.05%
3.	Proxy Group of Three Value Line (Standard Edition) Water Companies	\$ 865.130 (9)	25.4		\$ 1,101.438	34.9	6 - 7 (10)	1.68%	(11)	4.73%

		Recent Total	Recent
	Number of	Market	Average Market
Decile	Companies	Capitalization	Capitalization
		( millions )	( millions )
1 - Largest	172	\$8,214,688.366	\$47,759.816
2	177	1,722,153.325	9,729.680
3	199	894,917.914	4,497.075
4	209	548,389.454	2,623.873
5	219	400,381.543	1,828.226
6	257	325,662.936	1,267.171
7	300	264,131.617	880.439
8	372	219,976.996	591.336
9	589	230,476.080	391.301
10 - Smallest	1782	185,820.318	104.276

See page 4 for notes.

Exhibit No. \_\_\_\_ Schedule PMA-1 Page 3 of 18

Exhibit No.\_\_\_\_ Schedule PMA-1 Page 4 of 18

## Carolina Water Service, Inc. Derivation of Investment Risk Adjustment Based upon Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE

#### Notes:

- (1) From page 5 of this Schedule.
- (2) Line No. 1 Line No. 2 and Line No. 1 Line No. 3 of Columns 3 and 4, respectively. For example, the 4.05% in Column 5, Line No. 2 is derived as follows 4.05% = 6.41% 2.36%.
- (3) Total Assets and Liabilities from Application of Carolina Water Service, Inc. for adjustment of rates and charges for the provision pf water and sewer service and modification of rate schedules, Schedule A.
- With an estimated market capitalization of \$30.825 million (based upon the proxy group of six AUS Utility Reports water companies) and \$31.580 (based upon the proxy group of three Value Line (Standard Edition) water companies), Carolina Water Service, Inc. falls in the 10<sup>th</sup> decile of the NYSE/AMEX/NASDAQ which has an average market capitalization of \$104.276 as can be gleaned from the information shown in the table on the bottom half of page 3 of this Schedule
- (5) Size premium applicable to the 10<sup>th</sup> decile of the NYSE/AMEX/NASDAQ as shown on page 15 of this Schedule.
- (6) From page 1 of Schedule PMA-3
- (7) With an estimated market capitalization of \$623.771 million, the proxy group of six AUS Utility Reports water companies falls in the 8<sup>th</sup> decile of the NYSE/AMEX/NASDAQ which has an average market capitalization of \$591.336 million as can be gleaned from the information shown in the table on the bottom half of page 3 of this Schedule.
- (8) Size premium applicable to the 8<sup>th</sup> deciles of the NYSE/AMEX/NASDAQ as shown on page 15 of this Schedule.
- (9) From page 1 of Schedule PMA-4.
- (10) With an estimated market capitalization of \$1,101.438 million, the proxy group of three Value Line (Standard Edition) water companies falls between the 6<sup>th</sup> and 7<sup>th</sup> deciles of the NYSE/AMEX/NASDAQ which has an average market capitalization of \$1,073.805 million as can be gleaned from the information shown in the table on the bottom half of page 3 of this Schedule.
- (11) Average size premium applicable to the 6<sup>th</sup> and 7<sup>th</sup> deciles of the NYSE/AMEX/NASDAQ as shown on page 15 of this Schedule.

## Exhibit No. \_\_\_\_ Schedule PMA-1 Page 5 of 18

#### Carolina Water Service, Inc. Market Capitalization of Carolina Water Service, Inc.

#### the Proxy Group of Six AUS Utility Reports Water Companies and the the Proxy Group of Three Value Line (Standard (Edition) Water Companies and the

	1		<u>2</u>		<u>3</u>		4	<u>5</u>		<u>6</u>
Company	Common Stock Shares Outstanding at September 30, 2004 ( millions )		Book Value per Share at September 30, 2004 (1)	Sep	al Common Equity at otember 30, 2004 millions)	-	Closing Stock Market Price on March 28, 2005	Market-to-Book Ratio at March 28, 2005 (2)	Ma	Market pitalization on arch 28, 2005 (3) ( millions )
Carolina Water Service, Inc.	NA NA	· <sup>(4)</sup> _	NA	\$	13.241	(4) =	NA	232.8_ % (5)	\$	30.825 (6)
Based upon the Proxy Group of Six AUS Utility Reports Water Companies								232.0 % (3)		30.023 (0)
Based upon the Proxy Group of Three Value Line (Standard Edition) Water Companies								238.5 % (7)	\$	31.580 (8)
Proxy Group of Six AUS Utility Reports Water Companies										
American States Water Co.	16.689 93.243		\$ 15.238 7.294	\$	254.303 680.119		\$ 25.500 24.200	167.3 % 331.8	\$	425,570 2,256,481
Aqua America, Inc. Artesian Resources Corp.	93.243 3.946		13.747		54.245		26.050	189.5		102.793
California Water Service Group	18.345		15.678		287,605		33.920	216.4		622.262 204.226
Middlesex Water Company York Water Company	11.327 6.874		8.345 6.925		94,529 47,601		18.030 19.100	216.1 275.8		131,293
Average	25.071		11.205	\$	236.400	-	\$ 24.467	232.8 %	\$	623.771
Proxy Group of Three Value Line (Standard Edition) Water Companies										
American States Water Co.	\$ 16.689		\$ 15.238	\$	254.303		\$ 25.500	167.3 %	\$	425.570
Aqua America, Inc. California Water Service Group	93.243 18.345		7.294 15.678		680.119 287.605		24.200 33.920	331.8 216.4		2,256.481 622.262
	\$ 42.759		12.737	\$	407.342		\$ 27.873	238.5 %	\$	1,101.438
						_				

NA = Not Available

- Notes: (1) Column 3 / Column 1.
  - (2) Column 4 / Column 2.
  - (3) Column 5 \* Column 3.
  - (4) At June 30, 2004
  - (5) The market-to-book ratio of Carolina Water Service, Inc. at March 28, 2005 is assumed to be equal to the average market-to-book ratio at March 28, 2005 of the proxy group of six AUS Utility Reports Water Companies.
  - (6) Carolina Water Service, Inc.'s common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio at March 28, 2005 of the proxy group of six AUS Utility Reports water companies, 232.8%, and Carolina Water Service, Inc.'s market capitalization at March 28, 2005 would therefore have been \$30.825 million. (\$30.825 = \$13.241 \* 232.8%).
  - (7) The market-to-book ratio of Carolina Water Service, Inc. at March 28, 2005 is assumed to be equal to the average market-to-book ratio at March 28, 2005 of the proxy group of three Value Line (Standard Edition) water companies.
  - (8) Carolina Water Service, Inc.'s common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio at March 28, 2005 of the proxy group of three Value Line (Standard Edition) water companies, 238.5%, and Carolina Water Service, Inc.'s market capitalization at March 28, 2005 would therefore have been \$31.580 million. (\$31.580 = \$13.241 \* 238.5%).

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus Research Insight Data Base

Application of Carolina Water Service, inc. for adjustment of rates and charges for the provision of water and sewer service and modification of rate schedules, Schedule A

Stocks, Bonds, Bills, and Inflation

SBBI

Valuation Edition 2005 Yearbook

Ibboison Associates

## Chapter 7

#### Firm Size and Return

#### The Firm Size Phenomenon

One of the most remarkable discoveries of modern finance is that of a relationship between firm size and return. The relationship cuts across the entire size spectrum but is most evident among smaller companies, which have higher returns on average than larger ones. Many studies have looked at the effect of firm size on return. In this chapter, the returns across the entire range of firm size are examined.

#### Construction of the Decile Portfolios

The portfolios used in this chapter are those created by the Center for Research in Security Prices (CRSP) at the University of Chicago's Graduate School of Business. CRSP has refined the methodology of creating size-based portfolios and has applied this methodology to the entire universe of NYSE/AMEX/NASDAQ-listed securities going back to 1926.

The New York Stock Exchange universe excludes closed-end mutual funds, preferred stocks, real estate investment trusts, foreign stocks, American Depository Receipts, unit investment trusts, and Americus Trusts. All companies on the NYSE are ranked by the combined market capitalization of their eligible equity securities. The companies are then split into 10 equally populated groups, or deciles. Eligible companies traded on the American Stock Exchange (AMEX) and the Nasdaq National Market (NASDAQ) are then assigned to the appropriate deciles according to their capitalization in relation to the NYSE breakpoints. The portfolios are rebalanced, using closing prices for the last trading day of March, June, September, and December. Securities added during the quarter are assigned to the appropriate portfolio when two consecutive month-end prices are available. If the final NYSE price of a security that becomes delisted is a month-end price, then that month's return is included in the quarterly return of the security's portfolio. When a month-end NYSE price is missing, the month-end value of the security is derived from merger terms, quotations on regional exchanges, and other sources. If a month-end value still is not determined, the last available daily price is used.

Base security returns are monthly holding period returns. All distributions are added to the month-end prices, and appropriate price adjustments are made to account for stock splits and dividends. The return on a portfolio for one month is calculated as the weighted average of the returns for its individual stocks. Annual portfolio returns are calculated by compounding the monthly portfolio returns.

#### Size of the Deciles

Table 7-1 reveals that the top three deciles of the NYSE/AMEX/NASDAQ account for most of the total market value of its stocks. Approximately two-thirds of the market value is represented by the first decile, which currently consists of 172 stocks, while the smallest decile accounts for just over one percent of the market value. The data in the second column of Table 7-1 are averages across all

<sup>1</sup> Rolf W. Banz was the first to document this phenomenon. See Banz, Rolf W. "The Relationship Between Returns and Market Value of Common Stocks," Journal of Financial Economics, Vol. 9, 1981, pp. 3-18.

79 years. Of course, the proportion of market value represented by the various deciles varies from year to year.

Columns three and four give recent figures on the number of companies and their market capitalization, presenting a snapshot of the structure of the deciles near the end of 2004.

Table 7-1
Size-Decile Portfolios of the NYSE/AMEX/NASDAQ Size and Composition 1926-2004

Decile	Historical Average Percentage of Total Capitalization	Recent Number of Companies	Recent Decile Market Capitalization (in thousands)	Recent Percentage of Total Capitalization
1-Largest	63.31%	172	\$8,214,688,366	63.16%
2	13.97%	177	1,722,153,325	13.24%
3	7.58%	199	894,917,914	6.88%
4	4.74%	209	548,389,454	4 22%
5	3 24%	219	400,381,543	3.08%
6	2.37%	257	325,662,936	2.50%
7	1.73%	300	264,131,617	2.03%
, 8	1.28%	372	219,976,996	1 69%
9	0.98%	589	230,476,080	1.77%
10-Smallest	0 80%	1,782	185,820,318	1.43%
Mid-Cap 3-5	15.56%	627	1,843,688,910	14 18%
Low-Cap 6-8	5.38%	929	809,771,549	6.23%
Micro-Cap 9-10	1.79%	2,371	416,296,398	3.20%

Source: © 200503 CRSP® Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved, www.crsp.uchicago.edu.

Historical average percentage of total capitalization shows the average, over the last 79 years, of the decile market values as a percentage of the total NYSE/AMEX/NASDAQ calculated each month. Number of companies in deciles, recent market capitalization of deciles, and recent percentage of total capitalization are as of September 30, 2004.

Table 7-2 gives the current breakpoints that define the composition of the NYSE/AMEX/NASDAQ size deciles. The largest company and its market capitalization are presented for each decile. Table 7-3 shows the historical breakpoints for each of the three size groupings presented throughout this chapter. Mid-cap stocks are defined here as the aggregate of deciles 3-5. Based on the most recent data (Table 7-2), companies within this mid-cap range have market capitalizations at or below \$6,241,953,000 but greater than \$1,607,854,000. Low-cap stocks include deciles 6-8 and currently include all companies in the NYSE/AMEX/NASDAQ with market capitalizations at or below \$1,607,854,000 but greater than \$505,437,000. Micro-cap stocks include deciles 9-10 and include companies with market capitalizations at or below \$505,437,000. The market capitalization of the smallest company included in the micro-capitalization group is currently \$1,393,000.

Table 7-2
Size-Decile Portfolios of the NYSE/AMEX/NASDAQ, Largest Company and Its Market Capitalization by Decile
September 30, 2004

Decile	Market Capitalization of Largest Company (in thousands)	Company Name
1-Largest	\$342,087,219	General Electric Co.
2	14,096,886	Agilent Technologies Inc.
3	6,241,953	Tenet Healthcare Corp.
4	3,464,104	Wellchoice Inc.
5	2,231,707	OGE Energy Corp
6	1,607,854	Entercom Communications Corp
7	1,097,603	Vintage Petroleum Inc.
8	746,219	Wabash National Corp.
9	505,437	World Fuel Services Corp.
10-Smallest	262,725	Mastec Inc.

Source: Center for Research in Security Prices, University of Chicago

#### Presentation of the Decile Data

Summary statistics of annual returns of the 10 deciles over 1926–2004 are presented in Table 7-4. Note from this exhibit that both the average return and the total risk, or standard deviation of annual returns, tend to increase as one moves from the largest decile to the smallest. Furthermore, the serial correlations of returns are near zero for all but the smallest two deciles. Serial correlations and their significance will be discussed in detail later in this chapter.

Graph 7-1 depicts the growth of one dollar invested in each of three NYSE/AMEX/NASDAQ groups broken down into mid-cap, low-cap, and micro-cap stocks. The index value of the entire NYSE/AMEX/NASDAQ is also included. All returns presented are value-weighted based on the market capitalizations of the deciles contained in each subgroup. The sheer magnitude of the size effect in some years is noteworthy. While the largest stocks actually declined in 1977, the smallest stocks rose more than 20 percent. A more extreme case occurred in the depression-recovery year of 1933, when the difference between the first and tenth decile returns was far more substantial. This divergence in the performance of small and large company stocks is a common occurrence.

Table 7-3

#### Size-Decile Portfolios of the NYSE/AMEX/NASDAQ

Largest and Smallest Company by Size Group

from 1926 to 1965

	Capitalizati (	on of Larges in thousands	t Company )		on of Smalles in thousands	
Date (Sept 30)	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10
1926	\$61,490	\$14,040	\$4,305	\$14,100	\$4,325	\$43
1927	\$65,281	\$14,746	\$4,450	\$15,311	\$4,496	\$72
1928	\$81,998	\$18,975	\$5,074	\$19,050	\$5,119	\$135
1929	\$107,085	\$24,328	\$5,875	\$24,480	\$5,915	\$126
1930	\$67,808	\$13,050	\$3,219	\$13,068	\$3,264	\$30
1931	\$42,607	\$8,142	\$1,905	\$8,222	\$1,927	\$15
1932	\$12,431	\$2,170	\$473	\$2,196	\$477	\$19
1933	\$40,298	\$7,210	\$1,830	\$7,280	\$1,875	\$100
1934	\$38,129	\$6,669	\$1,669	\$6,734	\$1,673	\$68
1935	\$37,631	\$6,519	\$1,350	\$6,549	\$1,383	\$38
1936	\$46,920	\$11,505	\$2,660	\$11,526	\$2,668	\$98
1937	\$51,750	\$13,601	\$3,500	\$13,635	\$3,539	\$68
1938	\$36,102	\$8,325	\$2,125	\$8,372	\$2,145	\$60
1939	\$35,784	\$7,367	\$1,697	\$7,389	\$1,800	\$75
1940	\$31,050	\$7,990	\$1,861	\$8,007	\$1,872	\$51
1941	\$31,744	\$8,316	\$2,086	\$8,336	\$2,087	\$72
1942	\$26,135	\$6,870	\$1,779	\$6,875	\$1,788	\$82
1942	\$43,218	\$11,475	\$3,847	\$11,480	\$3,903	\$395
1944	\$46,621	\$13,066	\$4,800	\$13,068	\$4,812	\$309
1945	\$55,268	\$17,325	\$6,413	\$17,575	\$6,428	\$225
1946	\$79,158	\$24,192	\$10,013	\$24,199	\$10,051	\$829
1947	\$57,830	\$17,735	\$6,373	\$17,872	\$6,380	\$747
1948	\$67,238	\$19,575	\$7,313	\$19,651	\$7,329	\$784
1949	\$55,506	\$14,549	\$5,037	\$14,577	\$5,108	\$379
1950	\$65,881	\$18,675	\$6,176	\$18,750	\$6,201	\$303
1951	\$82,517	\$22,750	\$7,567	\$22,860	\$7,598	\$668
1952	\$97,936	\$25,452	\$8,428	\$25,532	\$8,480	\$480
1953	\$98,595	\$25,374	\$8,156	\$25,395	\$8,168	\$459
1954	\$125,834	\$29,645	\$8,484	\$29,707	\$8,488	\$463
1955	\$170,829	\$41,445	\$12,353	\$41,681	\$12,366	\$553
1956	\$183,434	\$46,805	\$13,481	\$46,886	\$13,524	\$1,122
1957	\$192,861	\$47,658	\$13,844	\$48,509	\$13,848	\$925
1958	\$195,083	\$46,774	\$13,7B9	\$46,871	\$13,816	\$550
1959	\$253,644	\$64,221	\$19,500	\$64,372	\$19,548	\$1,804
1960	\$246,202	\$61,485	\$19,344	\$61,529	\$19,385	\$831
	\$296,261	\$79,058	\$23,562	\$79,422	\$23,613	\$2,455
1961	\$290,261	\$58,866	\$18,952	\$59,143	\$18,968	\$1,018
1962	\$308,438	\$71,846	\$23,819	\$71,971	\$23,822	\$296
1963		\$79,343	\$25,594	\$79,508	\$25,595	\$220
1964 1965	\$344,033 \$363,759	\$84,479	\$28,365	\$84,600	\$28,375	\$250

Source: Center for Research in Security Prices, University of Chicago.

Table 7-3 (continued)

## Size-Decile Portfolios of the NYSE/AMEX/NASDAQ Largest and Smallest Company by Size Group

from 1966 to 2004

	m 1966 to 2004  Capitalization of Largest Company		Capitalization of Smallest Company					
	•	(in thousands	)	(in thousands)				
Date (Sept 30)	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10		
1966	\$399,455	\$99,578	\$34,884	\$99,935	\$34,966	\$381		
1967	\$459,170	\$117,985	\$42,267	\$118,329	\$42,313	\$381		
1968	\$528,326	\$149,261	\$60,351	\$150,128	\$60,397	\$592		
1969	\$517,452	\$144,770	\$54,273	\$145,684	\$54,280	\$2,119		
1970	\$380,246	\$94,025	\$29,910	\$94,047	\$29,916	\$822		
1971	\$542,517	\$145,340	\$45,571	\$145,673	\$45,589	\$865		
1972	\$545,211	\$139,647	\$46,728	\$139,710	\$46,757	\$1,031		
1973	\$424,584	\$94,809	\$29,601	\$95,378	\$29,606	\$561		
1974	\$344,013	\$75,272	\$22,475	\$75,853	\$22,481	\$444		
1975	\$465,763	\$96,954	\$28,140	\$97,266	\$28,144	\$540		
1976	\$551,071	\$116,184	\$31,987	\$116,212	\$32,002	\$564		
1977	\$573,084	\$135,804	\$39,192	\$137,323	\$39,254	\$513		
1978	\$572,967	\$159,778	\$46,621	\$160,524	\$46,629	\$830		
1979	\$661,336	\$174,480	\$49,088	\$174,517	\$49,172	\$948		
1980	\$754,562	\$194,012	\$48,671	\$194,241	\$48,953	\$549		
1981	\$954,665	\$259,028	\$71,276	\$261,059	\$71,289	\$1,446		
1982	\$762,028	\$205,590	\$54,675	\$206,536	\$54,883	\$1,060		
1983	\$1,200,680	\$352,698	\$103,443	\$352,944	\$103,530	\$2,025		
1984	\$1,068,972	\$314,650	\$90,419	\$315,214	\$90,659	\$2,093		
1985	\$1,432,342	\$367,413	\$93,810	\$368,249	\$94,000	\$760		
1986	\$1,857,621	\$444,827	\$109,956	\$445,648	\$109,975	\$706		
1987	\$2,059,143	\$467,430	\$112,035	\$468,948	\$112,125	\$1,277		
1988	\$1,957,926	\$420,257	\$94,268	\$421,340	\$94,302	\$696		
1989	\$2,147,608	\$480,975	\$100,285	\$483,623	\$100,384	\$96		
1990	\$2,164,185	\$472,003	\$93,627	\$474,065	\$93,750	\$132		
1991	\$2,129,863	\$457,958	\$87,586	\$458,853	\$87,733	\$278		
1992	\$2,428,671	\$500,346	\$103,352	\$501,050	\$103,500	\$510		
1993	\$2,711,068	\$608,520	\$137,945	\$608,825	\$137,987	\$602		
1994	\$2,497,073	\$601,552	\$149,435	\$602,552	\$149,532	\$598		
1995	\$2,793,761	\$653,178	\$158,011	\$654,019	\$158,063	\$89		
1996	\$3,150,685	\$763,377	\$195,188	\$763,812	\$195,326	\$1,04		
1997	\$3,511,132	\$818,299	\$230,472	\$821,028	\$230,554	\$48		
1998	\$4,216,707	\$934,264	\$253,329	\$936,727	\$253,336	\$1,67		
1999	\$4,251,741	\$875,309	\$218,336	\$875,582	\$218,368	\$1,50		
2000	\$4,143,902	\$840,000	\$192,598	\$840,730	\$192,721	\$1,46		
2001	\$5,252,063	\$1,114,792	\$269,275	\$1,115,200	\$270,391	\$44		
2002	\$5,012,705	\$1,143,845	\$314,042	\$1,144,452	\$314,174	\$50		
2003	\$4,794,027	\$1,166,799	\$330,608	\$1,167,040	\$330,797	\$33		
2004	\$6,241,953	\$1,607,854	\$505,437	\$1,607,931	\$506,410	\$1,39		

Source: Center for Research in Security Prices, University of Chicago.

Table 7-4
Size-Decile Portfolios of the NYSE/AMEX/NASDAQ, Summary Statistics of Annual Returns
1926-2004

1926-2004	Geometric Mean	Arithmetic Mean	Standard Deviation	Serial Correlation
Decile	9.6%	11.4%	19.27%	0.09
1-Largest	10.9	13.2	22.00	0.03
2	11.3	13.8	23.81	-0.02
3	11.3	14.4	26.10	-0.02
4	11.7	15.0	26.94	-0.02
5	11.8	15.5	27.97	0.04
6	11.6	15.7	30.17	0.01
7	11.9	16.7	33.65	0.04
8	12.2	17.7	36.77	0.05
9	14.0	21.8	45 67	0.15
10-Smallest			24.90	-0.02
Mid-Cap, 3-5	11.4	14.2		0.00
Low-Cap, 6-8	11.8	15.8	29.68	
Micro-Cap, 9-10	12.8	19.0	39.38	0.08
NYSE/AMEX/NASDAQ Total Value-Weighted Index	10.1	12.1	20.32	0.0

Source: Center for Research in Security Prices, University of Chicago

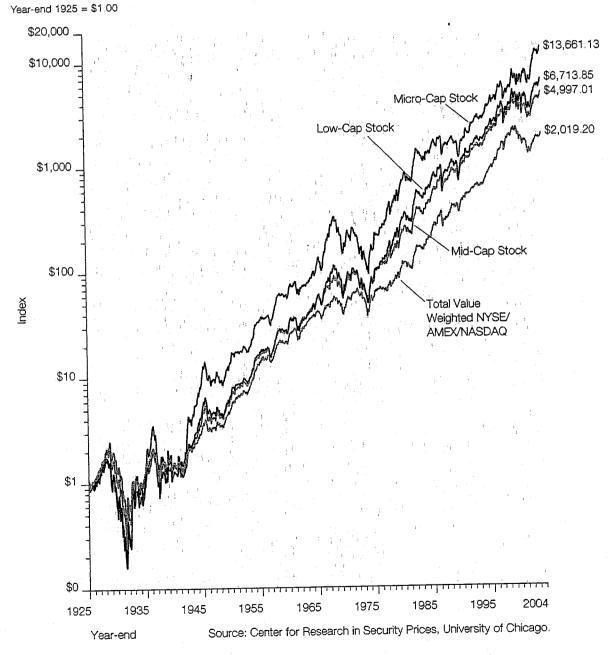
#### Aspects of the Firm Size Effect

The firm size phenomenon is remarkable in several ways. First, the greater risk of small stocks does not, in the context of the capital asset pricing model (CAPM), fully account for their higher returns over the long term. In the CAPM, only systematic or beta risk is rewarded; small company stocks have had returns in excess of those implied by their betas.

Second, the calendar annual return differences between small and large companies are serially correlated. This suggests that past annual returns may be of some value in predicting future annual returns. Such serial correlation, or autocorrelation, is practically unknown in the market for large stocks and in most other equity markets but is evident in the size premia.

Third, the firm size effect is seasonal. For example, small company stocks outperformed large company stocks in the month of January in a large majority of the years. Such predictability is surprising and suspicious in light of modern capital market theory. These three aspects of the firm size effect—long-term returns in excess of systematic risk, serial correlation, and seasonality—will be analyzed thoroughly in the following sections.

Graph 7-1
Size-Decile Portfolios of the NYSE/AMEX/NASDAQ: Wealth Indices of Investments in Mid-, Low-, Micro- and Total Capitalization Stocks
1925–2004



#### Long-Term Returns in Excess of Systematic Risk

The capital asset pricing model (CAPM) does not fully account for the higher returns of small company stocks. Table 7-5 shows the returns in excess of systematic risk over the past 79 years for each decile of the NYSE/AMEX/NASDAQ. Recall that the CAPM is expressed as follows:

$$k_s = r_f + (\beta_s \times ERP)$$

Table 7-5 uses the CAPM to estimate the return in excess of the riskless rate and compares this estimate to historical performance. According to the CAPM, the expected return on a security should consist of the riskless rate plus an additional return to compensate for the systematic risk of the security. The return in excess of the riskless rate is estimated in the context of the CAPM by multiplying the equity risk premium by  $\beta$  (beta). The equity risk premium is the return that compensates investors for taking on risk equal to the risk of the market as a whole (systematic risk). Beta measures the extent to which a security or portfolio is exposed to systematic risk. The beta of each decile indicates the degree to which the decile's return moves with that of the overall market.

A beta greater than one indicates that the security or portfolio has greater systematic risk than the market; according to the CAPM equation, investors are compensated for taking on this additional risk. Yet, Table 7-5 illustrates that the smaller deciles have had returns that are not fully explainable by their higher betas. This return in excess of that predicted by CAPM increases as one moves from the largest companies in decile 1 to the smallest in decile 10. The excess return is especially pronounced for micro-cap stocks (deciles 9–10). This size-related phenomenon has prompted a revision to the CAPM, which includes a size premium. Chapter 4 presents this modified CAPM theory and its application in more detail.

This phenomenon can also be viewed graphically, as depicted in the Graph 7-2. The security market line is based on the pure CAPM without adjustment for the size premium. Based on the risk (or beta) of a security, the expected return lies on the security market line. However, the actual historic returns for the smaller deciles of the NYSE/AMEX/NASDAQ lie above the line, indicating that these deciles have had returns in excess of that which is appropriate for their systematic risk.

3 Historical betas were calculated using a simple regression of the monthly portfolio (decile) total returns in excess of the 30-day U.S. Treasury bill total returns versus the S&P 500 total returns in excess of the 30-day U.S. Treasury bill, January 1926-December 2004. See Chapter 6 for more detail on beta estimation.

<sup>2</sup> The equity risk premium is estimated by the 79-year arithmetic mean return on large company stocks, 12.39 percent, less the 79-year arithmetic mean income-return component of 20-year government bonds as the historical riskless rate, in this case 5.22 percent. (It is appropriate, however, to match the maturity, or duration, of the riskless asset with the investment horizon.) See Chapter 5 for more detail on equity risk premium estimation.

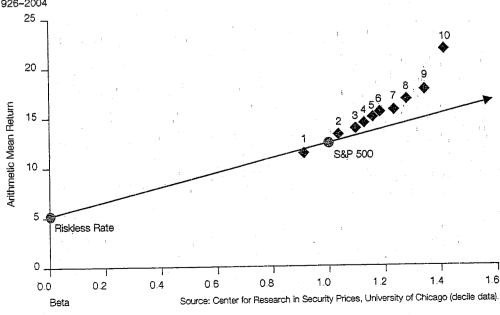
Table 7-5

Long-Term Returns in Excess of CAPM Estimation for Decile Portfolios of the NYSE/AMEX/NASDAQ 1926–2004

Decile	Beta*	Arithmetic Mean Return	Realized Return in Excess of Riskless Rate**	Estimated Return in Excess of Riskless Rate†	Size Premium (Return in Excess of CAPM)
1-Largest	0.91	11 39%	6.16%	6.53%	-0.37%
2	1.04	13.24%	8.02%	7 42%	0.60%
3	1.10	13.84%	8.62%	7.86%	0.75%
4	1.13	14.38%	9.15%	8.08%	107%
5	1.16	14.96%	9.74%	8.30%	1.44%
6	1.18	15.46%	10.23%	8 48%	1.75%
7	1.23	15.67%	10.45%	8 83%	161%
8	1.28	16.74%	11.51%	9.15%	2.36%
9	1.34	17.71%	12.48%	9.62%	2.86%
10-Smallest	1 41	21.77%	16.54%	10.14%	6.41%
Mid-Cap, 3-5	1.12	14 19%	8.96%	8 01%	0.95%
Low-Cap, 6-8	1.22	15.76%	10.54%	8.73%	1.81%
Micro-Cap, 9-10	1.36	18.97%	13 74%	9.72%	4.02%

<sup>\*</sup>Betas are estimated from monthly portfolio total returns in excess of the 30-day U.S. Treasury bill total return versus the S&P 500 total returns in excess of the 30-day U.S. Treasury bill, January 1926–December 2004.

Graph 7-2
Security Market Line versus Size-Decile Portfolios of the NYSE/AMEX/NASDAQ
1926-2004



<sup>\*\*</sup>Historical riskless rate is measured by the 79-year arithmetic mean income return component of 20-year government bonds (5.22 percent).

<sup>†</sup>Calculated in the context of the CAPM by multiplying the equity risk premium by beta. The equity risk premium is estimated by the arithmetic mean total return of the S&P 500 (12.39 percent) minus the arithmetic mean income return component of 20-year government bonds (5.22 percent) from 1926–2004.

#### Further Analysis of the 10th Decile

The size premia presented thus far do a great deal to explain the return due solely to size in publicly traded companies. However, by splitting the 10th decile into two size groupings we can get a closer look at the smallest companies. This magnification of the smallest companies will demonstrate whether the company size to size premia relationship continues to hold true.

As previously discussed, the method for determining the size groupings for size premia analysis was to take the stocks traded on the NYSE and break them up into 10 deciles, after which stocks traded on the AMEX and NASDAQ were allocated into the same size groupings. This same methodology was used to split the 10th decile into two parts: 10a and 10b, with 10b being the smaller of the two. This is equivalent to breaking the stocks down into 20 size groupings, with portfolios 19 and 20 representing 10a and 10b.

Table 7-7 shows that the pattern continues; as companies get smaller their size premium increases. There is a noticeable increase in size premium from 10a to 10b, which can also be demonstrated visually in Graph 7-3. This can be useful in valuing companies that are extremely small. Table 7-6 presents the size, composition, and breakpoints of deciles 10a and 10b. First, the recent number of companies and total decile market capitalization are presented. Then the largest company and its market capitalization are presented.

Breaking the smallest decile down lowers the significance of the results compared to results for the 10th decile taken as a whole, however. The same holds true for comparing the 10th decile with the Micro-Cap aggregation of the 9th and 10th deciles. The more stocks included in a sample the more significance can be placed on the results. While this is not as much of a factor with the recent years of data, these size premia are constructed with data back to 1926. By breaking the 10th decile down into smaller components we have cut the number of stocks included in each grouping. The change over time of the number of stocks included in the 10th decile for the NYSE/AMEX/NASDAQ is presented in Table 7-8. With fewer stocks included in the analysis early on, there is a strong possibility that just a few stocks can dominate the returns for those early years.

While the number of companies included in the 10th decile for the early years of our analysis is low, it is not too low to still draw meaningful results even when broken down into subdivisions 10a and 10b. All things considered, size premia developed for deciles 10a and 10b are significant and can be used in cost of capital analysis. These size premia should greatly enhance the development of cost of capital analysis for very small companies.

Table 7-6
Size-Decile Portfolios 10a and 10b of the NYSE/AMEX/NASDAQ,
Largest Company and Its Market Capitalization
September 30, 2004

Decile	Recent Number of Companies	Recent Decile Market Capitalization (in thousands)	Market Capitalization of Largest Company (in thousands)	Company Name	
10a	532	\$98,581,341	\$262,725	Mastec Inc.	
10b	1,261	\$83,633,980	\$143,916	Rex Stores Corp	

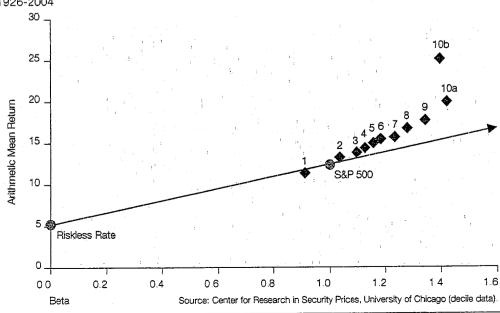
Note: These numbers may not aggregate to equal decile 10 figures. Source: Center for Research in Security Prices, University of Chicago.

Table 7-7
Long-Term Returns in Excess of CAPM Estimation for Decile Portfolios of the NYSE/AMEX/NASDAQ, with 10th Decile Split
1926–2004

	Beta*	Arithmetic Mean Return	Realized Return in Excess of Riskless Rate**	Estimated Return in Excess of Riskless Rate†	Size Premium (Return in Excess of CAPM)
1-Largest	0.91	11.39%	6.16%	6.53%	-0.37%
2	1.04	13.24%	8.02%	7.42%	0.60%
3	1.10	13.84%	8 62%	7.86%	0.75%
4	1,:13	14.38%	9.15%	8.08%	1.07%
5	1.16	14,96%	9.74%	8.30%	1 44%
6	1.18	15.46%	10.23%	8 48%	1.75%
7	1.23	1567%	10.45%	8.83%	1 61%
8 ·	1.28	16 74%	11.51%	9.15%	2.36%
9	1.34	17.71%	12 48%	9.62%	2.86%
10a	1.42	19.95%	14 73%	10.19%	4.54%
10b-Smallest	1.39	25.13%	19.90%	10.00%	9 90%
Mid-Cap, 3-5	1.12	14.19%	8 96%	8.01%	0.95%
Low-Cap, 6-8	1.22	15.76%	10.54%	8.73%	1.81%
Micro-Cap, 9-10	1.36	18.97%	13.74%	9.72%	4.02%

<sup>\*</sup>Betas are estimated from monthly portfolio total returns in excess of the 30-day U.S. Treasury bill total return versus the S&P 500 total returns in excess of the 30-day U.S. Treasury bill, January 1926–December 2004.

Graph 7-3
Security Market Line versus Size-Decile Portfolios of the NYSE/AMEX/NASDAQ, with 10th Decile Split 1926-2004



<sup>\*\*</sup>Historical riskless rate is measured by the 79-year arithmetic mean income return component of 20-year government bonds (5.22 percent).

<sup>†</sup>Calculated in the context of the CAPM by multiplying the equity risk premium by beta. The equity risk premium is estimated by the arithmetic mean total return of the S&P 500 (12.39 percent) minus the arithmetic mean income return component of 20-year government bonds (5.22 percent) from 1926–2004.

Table 7-8
Historical Number of Companies for NYSE/AMEX/NASDAQ Decile 10

Sept.	Number of Companies				
1926	52*				
1930	72				
1940	78				
1950	100				
1960	109				
1970	865				
1980	685				
1990	1,814				
2000	1,927				
2004	1,782				

<sup>\*</sup>The fewest number of companies was 49 in March, 1926

Source: Center for Research in Security Prices, University of Chicago

#### Alternative Methods of Calculating the Size Premia

The size premia estimation method presented above makes several assumptions with respect to the market benchmark and the measurement of beta. The impact of these assumptions can best be examined by looking at some alternatives. In this section we will examine the impact on the size premia of using a different market benchmark for estimating the equity risk premia and beta. We will also examine the effect on the size premia study of using sum beta or an annual beta.

#### Changing the Market Benchmark

In the original size premia study, the S&P 500 is used as the market benchmark in the calculation of the realized historical equity risk premium and of each size group's beta. The NYSE total value-weighted index is a common alternative market benchmark used to calculate beta. Table 7-9 uses this market benchmark in the calculation of beta. In order to isolate the size effect, we require an equity risk premium based on a large company stock benchmark. The NYSE deciles 1-2 large company index offers a mutually exclusive set of portfolios for the analysis of the smaller company groups: mid-cap deciles 3-5, low-cap deciles 6-8, and micro-cap deciles 9-10. The size premia analyses using these benchmarks are summarized in Table 7-9 and depicted graphically in Graph 7-4.

For the entire period analyzed, 1926–2004, the betas obtained using the NYSE total value-weighted index are higher than those obtained using the S&P 500. Since smaller companies had higher betas using the NYSE benchmark, one would expect the size premia to shrink. However, as was illustrated in Chapter 5, the equity risk premium calculated using the NYSE deciles 1–2 benchmark results in a value of 6.40, as opposed to 7.17 when using the S&P 500. The effect of the higher betas and lower equity risk premium cancel each other out, and the resulting size premia in Table 7-9 are slightly higher than those resulting from the original study.

<sup>4</sup> Sum beta is the method of beta estimation described in Chapter 6 that was developed to better account for the lagged reaction of small stocks to market movements. The sum beta methodology was developed for the same reason that the size premia were developed; small company betas were too small to account for all of their excess returns.

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## **Utilities**

The utilities rating methodology encompasses two basic components: business risk analysis and financial analysis. Evaluation of industry characteristics, the utility's position within that industry, its regulation, and its management provides the context for assessing a firm's financial condition.

Historical analysis is a tool for identifying strengths and weaknesses, and provides a starting point for evaluating financial condition. Business position assessment is the qualitative measure of a utility's fundamental creditworthiness. It focuses on the forces that will shape the utilities' future.

#### Utilities credit analysis factors Business risk Financial risk Markets and service area Earnings protection есопотту Capital structure Competitive position Cash flow adequacy Operations Financial flexibility/capital Regulation attraction Management Fuel, power, and water SUDDIV Asset concentration

The credit analysis of utilities is quickly evolving, as utilities are treated less as regulated monopolies and more as entities faced with a host of challengers in a competitive environment. Marketplace dynamics are supplanting the power of regulation, making it critically important to reduce costs and/or market new services in order to thwart competitors' inroads.

#### Markets and service area economy

Assessing service territory begins with the economic and demographic evaluation of the area in which the utility has its franchise. Strength of long-term demand for the product is examined from a macroeconomic perspective. This enables Standard & Poor's to evaluate the affordability of rates and the staying power of demand.

Standard & Poor's tries to discern any secular consumption trends and, more importantly, the reasons for them. Specific items examined include the size and growth rate of the market, strength of the franchise, historical and projected sales growth, income levels and trends in population, employment, and per capita income. A utility with a healthy economy and customer base—as illustrated by diverse employment opportunities, average or above-average wealth and income statistics, and low unemploy-

ment—will have a greater capacity to support its opera-

For electric and gas utilities, distribution by customer class is scrutinized to assess the depth and diversity of the utility's customer mix. For example, heavy industrial concentration is viewed cautiously, since a utility may have significant exposure to cyclical volatility. Alternatively, a large residential component yields a stable and more predictable revenue stream. The largest utility customers are identified to determine their importance to the bottom line and assess the risk of their loss and potential adverse effect on the utility's financial position. Credit concerns arise when individual customers represent more than 5% of revenues. The company or industry may play a significant role in the overall economic base of the service area. Moreover, large customers may turn to cogeneration or alternative power supplies to meet their energy needs, potentially leading to reduced cash flow for the utility (even in cases where a large customer pays discounted rates and is not a profitable account for the utility). Customer concentration is less significant for water and telecommunication utili-

#### Competitive position

As competitive pressures have intensified in the utilities industry, Standard & Poor's analysis has deepened to include a more thorough review of competitive position.

#### Electric utility competition

For electric utilities, competitive factors examined include: percentage of firm wholesale revenues that are most vulnerable to competition; industrial load concentration; exposure of key customers to alternative suppliers; commercial concentrations; rates for various customer classes; rate design and flexibility; production costs, both marginal and fixed; the regional capacity situation; and transmission constraints. A regional focus is evident, but high costs and rates relative to national averages are also of significant concern because of the potential for electricity substitutes over time.

Mounting competition in the electric utility industry derives from excess generating capacity, lower barriers to entering the electric generating business, and marginal costs that are below embedded costs. Standard & Poor's has already witnessed declining prices in wholesale markets, as de facto retail competition is already being seen in several parts of the country. Standard & Poor's believes that over the coming years more and more customers will want and demand lower prices. Initial concerns focus on the largest industrial loads, but other customer classes will be increasingly vulnerable. Competition will not necessar-

ily be driven by legislation. Other pressures will arise from global competition and improving technologies, whether it be the declining cost of incremental generation or advances in transmission capacity or substitute energy sources like the fuel cell. It is impossible to say precisely when wide-open retail competition will occur; this will be evolutionary. However, significantly greater competition in retail markets is inevitable.

#### Gas utility competition

Similarly, gas utilities are analyzed with regard to their competitive standing in the three major areas of demand: residential, commercial, and industrial. Although regulated as holders of monopoly power, natural gas utilities have for some time been actively competing for energy market share with fuel oil, electricity, coal, solar, wood, etc. The long-term staying power of market demand for natural gas cannot be taken for granted. In fact, as the electric utility industry restructures and reduces costs, electric power will become more cost competitive and threaten certain gas markets. In addition, independent gas marketers have made greater inroads behind the city gate and are competing for large gas users. Moreover, the recent trend by state regulators to unbundle utility services is creating opportunities for outsiders to market niche products. Distributors still have the upper hand, but those who do not reduce and control costs, and thus rates, could find competition even more difficult.

Natural gas pipelines are judged to carry a somewhat higher business risk than distribution companies because they face competition in every one of their markets. To the extent a pipeline serves utilities versus industrial end users, its stability is greater. Over the next five years, pipeline competition will heat up since many service contracts with customers are expiring. Most distributor or end-use customers are looking to reduce pipeline costs and are working to improve their load factor to do so. Thus, pipelines will likely find it difficult to recontract all capacity in coming years. Being the pipeline of choice is a function of attractive transportation rates, diversity and quality of services provided, and capacity available in each particular market. In all cases though, periodic discounting of rates to retain customers will occur and put pressure on profitability.

#### Water utility competition

As the last true utility monopoly, water utilities face very little competition and there is currently no challenge to the continuation of franchise areas. The only exceptions have been cases where investor-owned water companies have been subject to condemnation and municipalization because of poor service or political motivations. In that regard, Standard & Poor's pays close attention to costs and rates in relation to neighboring utilities and national averages. (In contrast, the privatization of public water facilities has begun, albeit at a slower pace than anticipated. This is occurring mostly in the form of operating contracts and public/private partnerships, and not in asset transfers. This trend should continue as cities look for ways to bal-

ance their tight budgets.) Also, water utilities are not fully immune to the forces of competition; in a few instances wholesale customers can access more than one supplier.

#### Telephone competition

The Telecommunications Act of 1996 accelerates the continuing challenge to the local exchange companies' (LECs) century-old monopoly in the local loop. Competitive access providers (CAPs), both facilities-based and resellers, are aggressively pursuing customers, generally targeting metropolitan areas, and promising lower rates and better service.

Most long-distance calls are still originated and terminated on the local telephone company network. To complete such a call, the long-distance provider (including AT&T, MCI, Sprint and a host of smaller interexchange carriers or "IXCs") must pay the local telephone company a steep "access" fee to compensate the local phone company for the use of its local network. CAPs, in contrast, build or lease facilities that directly connect customers to their long-distance carrier, bypassing the local telephone company and avoiding access fees, and thereby can offer lower long-distance rates. But the LECs are not standing still; they are combating the loss of business to CAPs by lowering access fees, thereby reducing the economic incentive for a high usage long-distance customer to use a CAP. LECs are attempting to make up for the loss of revenues from lower access fees by increasing basic local service rates (or at least not lowering them), since basic service is far less subject to competition. LECs are improving operating efficiency and marketing high margin, value-added new services. Additionally, in the wake of the Telecommunications Act, LECs will capture at least some of the inter-LATA long-distance market. As a result of these initiatives, LECs continue to rebuild themselves—from the traditional utility monopoly to leaner, more marketing oriented organizations.

While LECs, and indeed all segments of the telecommunications sector, face increasing competition, there are favorable industry factors that tend to offset heightened business risk and auger for overall ratings stability for most LECs. Importantly, telecommunications is a declining-cost business. With increased deployment of fiber optics, the cost of transport has fallen dramatically and digital switching hardware and software have yielded more capable, trouble-free and cost-efficient networks. As a result, the cost of network maintenance has dropped sharply, as illustrated by the ratio of employees per 10,000 access lines, an oft cited measurement of efficiency. Ratios as low as 25 employees per 10,000 lines are being seen, down from the typical 40 or more employees per 10,000 ratio of only a few years ago.

In addition, networks are far more capable. They are increasingly digitally switched and able to accommodate high-speed communications. The infrastructure needed to accommodate switched broadband services will be built into telephone networks over the next few years. These advanced networks will enable telephone companies to look to a greater variety of high-margin, value-added serv-

ices. In addition to those current services such as call waiting or caller ID, the delivery of hundreds of broadcast and interactive video channels will be possible. While these services offer the potential of new revenue streams, they will simultaneously present a formidable challenge. LECs will be entering the new (to them) arena of multimedia entertainment and will have to develop expertise in marketing and entertainment programming acumen; such skills stand in sharp contrast to LECs' traditional strengths in engineering and customer service.

#### Operations

Standard & Poor's focuses on the nature of operations from the perspective of cost, reliability, and quality of service. Here, emphasis is placed on those areas that require management attention in terms of time or money and which, if unresolved, may lead to political, regulatory, or competitive problems.

#### Operations of electric utilities

For electrics, the status of utility plant investment is reviewed with regard to generating plant availability and utilization, and also for compliance with existing and contemplated environmental and other regulatory standards. The record of plant outages, equivalent availability, load factors, heat rates, and capacity factors are examined. Also important is efficiency, as defined by total megawatt hour per employee and customers per employee. Transmission interconnections are evaluated in terms of the number of utilities to which the utility in question has access, the cost structures and available generating capacity of these other utilities, and the price paid for wholesale power.

Because of mounting competition and the substantial escalation in decommissioning estimates, significant weight is given to the operation of nuclear facilities. Nuclear plants are becoming more vulnerable to high production costs that make their rates uneconomic. Significant asset concentration may expose the utility to poor performance, unscheduled outages or premature shutdowns, and large deferrals or regulatory assets that may need to be written off for the utility to remain competitive. Also, nuclear facilities tend to represent significant portions of their operators' generating capability and assets. The loss of a productive nuclear unit from both power supply and rate base can interrupt the revenue stream and create substantial additional costs for repairs and improvements and replacement power. The ability to keep these stations running smoothly and economically directly influences the ability to meet electric demand, the stability of revenues and costs, and, by extension, the ability to maintain adequate creditworthiness. Thus, economic operation, safe operation, and long-term operation are examined in depth. Specifically, emphasis is placed on operation and maintenance costs, busbar costs, fuel costs, refueling outages, forced outages, plant statistics, NRC evaluations, the potential need for repairs, operating licenses, decommissioning estimates and amounts held in external trusts, spent fuel storage capacity, and management's nuclear experience. In essence, favorable nuclear operations offer significant opportunities but, if a nuclear unit runs poorly or not at all, the attendant risks can be great.

#### Operations of gas utilities

For gas pipeline and distribution companies, the degree of plant utilization, the physical condition of the mains and lines, adequacy of storage to meet seasonal needs, "lost and unaccounted for" gas levels, and per-unit nongas operating and construction costs are important factors. Efficiency statistics such as load factor, operating costs per customer, and operating income per employee are also evaluated in comparison to other utilities and the industry as a whole.

#### Operations of water utilities

As a group, water utilities are continually upgrading their physical plant to satisfy regulations and to develop additional supply. Over the next decade, water systems will increasingly face the task of maintaining compliance, as drinking water regulations change and infrastructure ages. Given that the Safe Drinking Water Act was authorized in 1974, the first generation of treatment plants built to conform with these rules are almost 20 years old. Additionally, because the focus during this period was on satisfying environmental standards, deferred maintenance of distribution systems has been common, especially in older urban areas. The increasing cost of supplying treated water argues against the high level of unaccounted for water witnessed in the industry. Consequently, Standard & Poor's anticipates capital plans for rebuilding distribution lines and major renewal and replacement efforts aimed at treatment plants.

#### Operations of telephone companies

For telephone companies, cost-of-service analysis focuses on plant capability and measures of efficiency and quality of service. Plant capability is ascertained by looking at such parameters as percentage of digitally switched lines; fiber optic deployment, in particular in those portions of the plant key to network survival; and the degree of broadband capacity fiber and coaxial deployment and broadband switching capacity. Efficiency measures include operating margins, the ratio of employees per 10,000 access lines, and the extent of network and operations consolidation. Quality of service encompasses examination of quantitative measures, such as trouble reports and repeat service calls, as well as an assessment of qualitative factors, that may include service quality goals mandated by regulators.

#### Regulation

Regulatory rate-setting actions are reviewed on a caseby-case basis with regard to the potential effect on creditworthiness. Regulators' authorizing high rates of return is of little value unless the returns are earnable. Furthermore, allowing high returns based on noncash items does not benefit bondholders. Also, to be viewed positively, regulatory treatment should allow consistent performance from

period to period, given the importance of financial stability as a rating consideration.

The utility group meets frequently with commission and staff members, both at Standard & Poor's offices and at commission headquarters, demonstrating the importance Standard & Poor's places on the regulatory arena for credit quality evaluation. Input from these meetings and from review of rate orders and their impact weigh heavily in Standard & Poor's analysis.

Standard & Poor's does not "rate" regulatory commissions. State commissions typically regulate a number of diverse industries, and regulatory approaches to different types of companies often differ within a single regulatory jurisdiction. This makes it all but impossible to develop inclusive "ratings" for regulators.

Standard & Poor's evaluation of regulation also encompasses the administrative, judicial, and legislative processes involved in state and federal regulation. These can affect rate-setting activities and other aspects of the business, such as competitive entry, environmental and safety rules, facility siting, and securities sales.

As the utility industry faces an increasingly deregulated environment, alternatives to traditional rate-making are becoming more critical to the ability of utilities to effectively compete, maintain earnings power, and sustain creditor protection. Thus, Standard & Poor's focuses on whether regulators, both state and federal, will help or hinder utilities as they are exposed to greater competition. There is much that regulators can do, from allocating costs to more captive customers to allowing pricing flexibility—and sometimes just stepping out of the way.

Under traditional rate-making, rates and earnings are tied to the amount of invested capital and the cost of capital. This can sometimes reward companies more for justifying costs than for containing them. Moreover, most current regulatory policies do not permit utilities to be flexible when responding to competitive pressures of a deregulated market. Lack of flexible tariffs for electric utilities may lure large customers to wheel cheaper power from other sources.

In general, a regulatory jurisdiction is viewed favorably if it permits earning a return based on the ability to sustain rates at competitive levels. In addition to performance-based rewards or penalties, flexible plans could include market-based rates, price caps, index-based prices, and rates premised on the value of customer service. Such rates more closely mirror the competitive environment that utilities are confronting.

#### Electric industry regulation

The ability to enter into long-term arrangements at negotiated rates without having to seek regulatory approval for each contract is also important in the electric industry. (While contracting at reduced rates constrains financial performance, it lessens the potential adverse impact in the event of retail wheeling. Since revenue losses associated with this strategy are not likely to be recovered from ratepayers, utilities must control costs well enough to remain competitive if they are to sustain current levels of bondholder protection.)

#### Natural gas industry regulation

In the gas industry, too, several state commission policies weigh heavily in the evaluation of regulatory support. Examples include stabilization mechanisms to adjust revenues for changes in weather or the economy, rate and service unbundling decisions, revenue and cost allocation between sales and transportation customers, flexible industrial rates, and the general supportiveness of construction costs and gas purchases.

#### Water industry regulation

In all water utility activities, federal and state environmental regulations continue to play a critical role. The legislative timetable to effect the 1986 amendments to the Safe Drinking Water Act of 1974 was quite aggressive. But environmental standards-setting has actually slowed over the past couple of years due largely to increasing sentiment that the stringent, costly standards have not been justified on the basis of public health. A moratorium on the promulgation of significant new environmental rules is anticipated.

#### Telecommunications industry regulation

Despite the advances in telecommunications deregulation, analysis of regulation of telephone operators will continue to be a key rating determinant for the foreseeable future. The method of regulation may be either classic rate-based rate of return or some form of price cap mechanism. The most important factor is to assess whether the regulatory framework—no matter which type—provides sufficient financial incentive to encourage the rated company to maintain its quality of service and to upgrade its plant to accommodate new services while facing increasing competition from wireless operators and cable television companies.

Where regulators do still set tariffs based on an authorized return, Standard & Poor's strives to explore with regulators their view of the rate-of-return components that can materially impact reported versus regulatory earnings. Specifically these include the allowable base upon which the authorized return can be earned, allowable expenses, and the authorized return. Since regulatory oversight runs the gamut from strict, adversarial relationships with the regulated operating companies to highly supportive postures, Standard & Poor's probes beyond the apparent regulatory environment to ascertain the actual impact of regulation on the rated company.

#### Management

Evaluating the management of a utility is of paramount importance to the analytical process since management's abilities and decisions affect all areas of a company's operations. While regulation, the economy, and other outside factors can influence results, it is ultimately the quality of management that determines the success of a company.

With emerging competition, utility management will be more closely scrutinized by Standard & Poor's and will become an increasingly critical component of the credit evaluation. Management strategies can be the key determinant in differentiating utilities and in establishing where companies lie on the business position spectrum. It is imperative that managements be adaptable, aggressive, and proactive if their utilities are to be viable in the future; this is especially important for utilities that are currently uncompetitive.

The assessment of management is accomplished through meetings, conversations, and reviews of company plans. It is based on such factors as tenure, industry experience, grasp of industry issues, knowledge of customers and their needs, knowledge of competitors, accounting and financing practices, and commitment to credit quality. Management's ability and willingness to develop workable strategies to address their systems' needs, to deal with the competitive pressures of free market, to execute reasonable and effective long-term plans, and to be proactive in leading their utilities into the future are assessed. Management quality is also indicated by thoughtful balancing of public and private priorities, a record of credibility, and effective communication with the public, regulatory bodies, and the financial community. Boards of directors will receive ever more attention with respect to their role in setting appropriate management incentives.

With competition the watchword, Standard & Poor's also focuses on management's efforts to enhance financial condition. Management can bolster bondholder protection by taking any number of discretionary actions, such as selling common equity, lowering the common dividend payout, and paying down debt. Also important for the electric industry will be creativity in entering into strategic alliances and working partnerships that improve efficiency, such as central dispatching for a number of utilities or locking up at-risk customers through long-term contracts or expanded flexible pricing agreements. Proactive management teams will also seek alternatives to traditional rate-base, rate-of-return rate-making, move to adopt higher depreciation rates for generating facilities, segment customers by individual market preferences, and attempt to create superior service organizations.

In general, management's ability to respond to mounting competition and changes in the utility industry in a swift and appropriate manner will be necessary to maintain credit health.

#### Fuel, power, and water supply

Assessment of present and prospective fuel and power supply is critical to every electric utility analysis, while gauging the long-term natural gas supply position for gas pipeline and distribution companies and the water resources of a water utility is equally important. There is no similar analytical category for telephone utilities.

#### Electric utilities

For electric utilities emphasis is placed on generating

reserve margins, fuel mix, fuel contract terms, demandside management techniques, and purchased power arrangements. The adequacy of generating margins is examined nationally, regionally, and for each individual company. However, the reserve margin picture is muddied by the imprecise nature of peak-load growth forecasting, and also supply uncertainty relating to such things as Canadian capacity availability and potential plant shutdowns due to age, new NRC rules, acid rain remedies, fuel shortages, problems associated with nontraditional technologies, and so forth. Even apparently ample reserves may not be what they seem. Moreover, the quality of capacity is just as important as the size of reserves. Companies' reserve requirements differ, depending upon individual operating characteristics.

Fuel diversity provides flexibility in a changing environment. Supply disruptions and price hikes can raise rates and ignite political and regulatory pressures that ultimately lead to erosion in financial performance. Thus, the ability to alter generating sources and take advantage of lower cost fuels is viewed favorably.

Dependence on any single fuel means exposure to that fuel's problems: electric utilities that rely on oil or gas face the potential for shortages and rapid price increases; utilities that own nuclear generating facilities face escalating costs for decommissioning; and coal-fired capacity entails environmental problems stemming from concerns over acid rain and the "greenhouse effect."

Buying power from neighboring utilities, qualifying facility projects, or independent power producers may be the best choice for a utility that faces increasing electricity demand. There has been a growing reliance on purchased power arrangements as an alternative to new plant construction. This can be an important advantage, since the purchasing utility avoids potential construction cost overruns as well as risking substantial capital. Also, utilities can avoid the financial risks typical of a multiyear construction program that are caused by regulatory lag and prudence reviews. Furthermore, purchased power may enhance supply flexibility, fuel resource diversity, and maximize load factors. Utilities that plan to meet demand projections with a portfolio of supply-side options also may be better able to adapt to future growth uncertainties. Notwithstanding the benefits of purchasing, such a strategy has risks associated with it. By entering into a firm long-term purchased power contract that contains a fixed-cost component, utilities can incur substantial market, operating, regulatory, and financial risks. Moreover, regulatory treatment of purchased power removes any upside potential that might help offset the risks. Utilities are not compensated through incentive rate-making; rather, purchased power is recovered dollar-for-dollar as an operating expense.

To analyze the financial impact of purchased power, Standard & Poor's first calculates the net present value of future annual capacity payments (discounted at 10%). This represents a potential debt equivalent—the off-balance-sheet obligation that a utility incurs when it enters into a long-term purchased power contract. However, Standard

& Poor's adds to the utility's balance sheet only a portion of this amount, recognizing that such a contractual arrangement is not entirely the equivalent of debt. What percentage is added is a function of Standard & Poor's qualitative analysis of the specific contract and the extent to which market, operating, and regulatory risks are borne by the utility (the risk factor). For unconditional, take-orpay contracts, the risk factor range is from 40%-80%, with the average hovering around 60%. A lower risk factor is typically assigned for system purchases from coal-fired utilities and a higher risk factor is usually designated for unit-specific nuclear purchases. The range for take-and-pay performance obligations is between 10%-50%.

#### Gas utilities

For gas distribution utilities, long-term supply adequacy obviously is critical, but the supply role has become even more important in credit analysis since the Federal Energy Regulatory Commission's Order 636 eliminated the interstate pipeline merchant business. This thrust gas supply responsibilities squarely on local gas distributors. Standard & Poor's has always believed distributor management has the expertise and wherewithal to perform the job well, but the risks are significant since gas costs are such a large percentage of total utility costs. In that regard, it is important for utilities to get preapprovals of supply plans by state regulators or at least keep the staff and commissioners well informed. To minimize risks, a well-run program would diversify gas sources among different producers or marketers, different gas basins in the U.S. and Canada, and different pipeline routes. Also, purchase contracts should be firm, with minimal take-or-pay provisions, and have prices tied to an industry index. A modest percentage of fixed-price gas is not unreasonable. Contracts, whether of gas purchases or pipeline capacity, should be intermediate term. Staggering contract expirations (preferably annually) provides an opportunity to be an active market player. A modest degree of reliance on spot purchases provides flexibility, as does the use of market-based storage. Gas storage and on-property gas resources such as liquefied natural gas or propane air are effective peak-day and peakseason supply management tools.

Since pipeline companies no longer buy and sell natural gas and are just common carriers, connections with varied reserve basins and many wells within those basins are of great importance. Diversity of sources helps offset the risks arising from the natural production declines eventually experienced by all reserve basins and individual wells. Moreover, such diversity can enhance a pipeline's attractiveness as a transporter of natural gas to distributors and end users seeking to buy the most economical gas available for their needs.

#### Water utilities

Nearly all water systems throughout the U.S. have ample long-term water supplies. Yet to gain comfort, Standard & Poor's assesses the production capability of treatment plants and the ability to pump water from underground aquifers in relation to the usage demands from consumers.

Having adequate treated water storage facilities has become important in recent years and has helped many systems meet demands during peak summer periods. Of interest is whether the resources are owned by the utility or purchased from other utilities or local authorities. Owning properties with water rights provides more supply security. This is especially so in states like California where water allocations are being reduced, particularly since recent droughts and environmental issues have created alarm. Since the primary cost for water companies is treatment, it makes little difference whether raw water is owned or bought. In fact, compliance with federal and state water regulations is very high, and the overall cost to deliver treated water to consumers remains relatively affordable.

## Asset concentration in the electric utility industry

In the electric industry, Standard & Poor's follows the operations of major generating facilities to assess if they are well managed or troubled. Significant dependence on one generating facility or a large financial investment in a single asset suggests high risk. The size or magnitude of a particular asset relative to total generation, net plant in service, and common equity is evaluated. Where substantial asset concentration exists, the financial profile of a company may experience wide swings depending on the asset's performance. Heavy asset concentration is most prevalent among utilities with costly nuclear units.

#### Earnings protection

In this category, pretax cash income coverage of all interest charges is the primary ratio. For this calculation, allowance for funds used during construction (AFUDC) is removed from income and interest expense. AFUDC and other such noncash items do not provide any protection for bondholders. To identify total interest expense, the analyst reclassifies certain operating expenses. The interest component of various off-balance-sheet obligations, such as leases and some purchased-power contracts, is included in interest expense. This provides the most direct indication of a utility's ability to service its debt burden.

While considerable emphasis in assessing credit protection is placed on coverage ratios, this measure does not provide the entire earnings protection picture. Also important are a company's earned returns on both equity and capital, measures that highlight a firm's earnings performance. Consideration is given to the interaction of embedded costs, financial leverage, and pretax return on capital.

#### Capital structure

Analyzing debt leverage goes beyond the balance sheet and covers quasi-debt items and elements of hidden financial leverage. Noncapitalized leases (including sale/leaseback obligations), debt guarantees, receivables financing, and purchased-power contracts are all considered debt equivalents and are reflected as debt in calculating capital

structure ratios. By making debt level adjustments, the analyst can compare the degree of leverage used by each utility company.

Furthermore, assets are examined to identify undervalued or overvalued items. Assets of questionable value are discounted to more accurately evaluate asset protection.

Some firms use short-term debt as a permanent piece of their capital structure. Short-term debt also is considered part of permanent capital when it is used as a bridge to permanent financing. Seasonal, self-liquidating debt is excluded from the permanent debt amount, but this situation is rare—with the exception of certain gas utilities. Given the long life of almost all utility assets, short-term debt may expose these companies to interest-rate volatility, remarketing risk, bank line backup risk, and regulatory exposure that cannot be readily offset. The lower cost of shorter-term obligations (assuming a positively sloped yield curve) is a positive factor that partially mitigates the risk of interest-rate variability. As a rule of thumb, a level of short-term debt that exceeds 10% of total capital is cause for concern.

Similarly, if floating-rate debt and preferred stock constitute over one-third of total debt plus preferred stock, this level is viewed as unusually high and may be cause for concern. It might also indicate that management is aggressive in its financial policies.

A layer of preferred stock in the capital structure is usually viewed as equity—since dividends are discretionary and the subordinated claim on assets provides a cushion for providers of debt capital. A preferred component of up to 10% is typically viewed as a permanent wedge in the capital structure of utilities. However, as rate-of-return regulation is phased out, preferred stock may be viewed by utilities—as many industrial firms would—as a temporary option for companies that are not current taxpayers that do not benefit from the tax deductibility of interest. Even now, floating-rate preferred and money market perpetual preferred are problematic; a rise in the rate due to deteriorating credit quality tends to induce a company to take out such preferred stock with debt. Structures that convey tax deductibility to preferred stock have become very popular and do generally afford such financings with equity treatment.

#### Cash flow adequacy

Cash flow adequacy relates to a company's ability to generate funds internally relative to its needs. It is a basic component of credit analysis because it takes cash to pay expenses, fund capital spending, pay dividends, and make interest and principal payments. Since both common and preferred dividend payments are important to maintain capital market access, Standard & Poor's looks at cash flow measures both before and after dividends are paid.

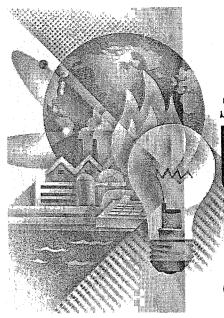
To determine cash flow adequacy, several quantitative relationships are examined. Emphasis is placed on cash flow relative to debt, debt service requirements, and capital spending. Cash flow adequacy is evaluated with respect to a firm's ability to meet all fixed charges, including capacity payments under purchased-power contracts. Despite the conditional nature of some contracts, the purchaser is obligated to pay a minimum capacity charge. The ratio used is funds from operations plus interest and capacity payments divided by interest plus capacity payments.

#### Financial flexibility/capital attraction

Financing flexibility incorporates a utility's financing needs, plans, and alternatives, as well as its flexibility to accomplish its financing program under stress without damaging creditworthiness. External funding capability complements internal cash flow. Especially since utilities are so capital intensive, a firm's ability to tap capital markets on an ongoing basis must be considered. Debt capacity reflects all the earlier elements: earnings protection, debt leverage, and cash flow adequacy. Market access at reasonable rates is restricted if a reasonable capital structure is not maintained and the company's financial prospects dim. The analyst also reviews indenture restrictions and the impact of additional debt on covenant tests.

Standard & Poor's assesses a company's capacity and willingness to issue common equity. This is affected by various factors, including the market-to-book ratio, dividend policy, and any regulatory restrictions regarding the composition of the capital structure.





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## New Business Profile Scores Assigned for U.S. Utility and Power Companies; Financial Guidelines Revised

Standard & Poor's Ratings Services has assigned new business profile scores to U.S. utility and power companies to better reflect the relative business risk among companies in the sector. Standard & Poor's also has revised its published risk-adjusted financial guidelines. The new business scores and financial guidelines do not represent a change to Standard & Poor's ratings criteria or methodology, and no ratings changes are anticipated from the new business profile scores or revised financial guidelines.

#### New Business Profile Scores and Revised Financial Guidelines

Standard & Poor's has always monitored changes in the industry and altered its business risk assessments accordingly. This is the first time since the 10-point business pro-

file scale for U.S. investor-owned utilities was implemented that a comprehensive assessment of the benefits and the application of the methodology has been made. The principal purpose was to determine if the methodology continues to provide meaningful differentiation of business risk. The review indicated that while business profile scoring continues to provide analytical benefits, the complete range of the 10-point scale was not being utilized to the fullest extent.

Standard & Poor's has also revised the key financial guidelines that it uses as an integral part of evaluating the credit quality of U.S. utility and power companies. These guidelines were last updated in June 1999. The financial guidelines for three principal ratios (funds from operations (FFO) interest coverage, FFO to total debt, and total debt to total capital) have been broadened so as to be more flexible. Pretax interest cov-

Chart 1

Distribution of Business Profile Scores

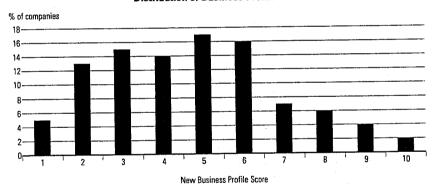
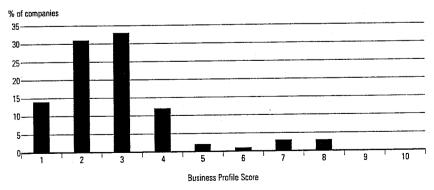


Chart 2

Transmission and Distribution—Water, Gas, and Electric



erage as a key credit ratio was eliminated.

Finally, Standard & Poor's has segmented the utility and power industry into sub-sectors based on the dominant corporate strategy that a company is pursuing. Standard & Poor's has published a new U.S. utility and power company ranking list that reflects these sub-sectors.

There are numerous benefits to the reassessment. Fuller utilization of the entire 10-point scale provides a superior relative ranking of qualitative business risk. A revision of the financial guidelines supports the goal of not causing rating changes from the recalibration of the business profiles. Classification of companies by sub-sectors will ensure greater comparability and consistency in ratings. The use of industry segmentation will also allow more in-depth statistical analysis of ratings distributions and rating changes.

The reassessment does not represent a change to Standard & Poor's criteria or methodology for determining ratings for utility and power companies. Each business profile score should be considered as the assignment of a new score; these scores do not represent improvement or deteri-

oration in our assessment of an individual company's business risk relative to the previously assigned score. The financial guidelines continue to be risk-adjusted based on historical utility and industrial medians. Segmentation into industry sub-sectors does not imply that specific company characteristics will not weigh heavily into the assignment of a company's business profile score.

#### Reculto

Previously, 83% of U.S. utility and power business profile scores fell between '3' and '6', which clearly does not reflect the risk differentiation that exists in the utility and power industry today. Since the 10-point scale was introduced, the industry has transformed into a much less homogenous industry, where the divergence of business risk—particularly regarding management, strategy, and degree of competitive market exposure—has created a much wider spectrum of risk profiles. Yet over the same period, business profile scores actually converged more tightly around a median score of '4'. The new business pro-

Chart 3
Transmission Only—Electric, Gas, and Other

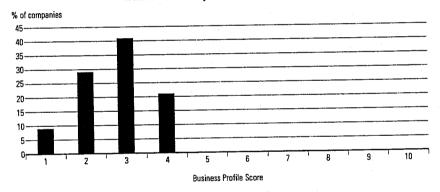
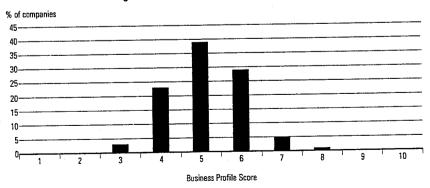


Chart 4
Integrated Electric, Gas, and Combination Utilities



file scores, as of June 2, are shown in Chart 1. The overall median business profile score is now '5'.

Table 1 contains the revised financial guidelines. It is important to emphasize that these metrics are only guidelines associated with expectations for various rating levels. Although credit ratio analysis is an important part of the ratings process, these three statistics are by no means the only critical financial measures that Standard & Poor's uses in its analytical process. We also analyze a wide array of financial ratios that do not have published guidelines for each rating category.

Again, ratings analysis is not driven solely by these financial ratios, nor has it ever been. In fact, the new financial guidelines that Standard & Poor's is incorporating for the specified rating categories reinforce the analytical framework whereby other factors can outweigh the achievement of otherwise acceptable financial ratios. These factors include:

- Effectiveness of liability and liquidity management;
- Analysis of internal funding sources;

- Return on invested capital;
- The execution record of stated business strategies;
- Accuracy of projected performance versus actual results, as well as the trend;
- Assessment of management's financial policies and attitude toward credit; and
- Corporate governance practices.

Charts 2 through 6 show business profile scores broken out by industry sub-sector. The five industry sub-sectors are:

- Transmission and distribution—Water, gas, and electric;
- Transmission only—Electric, gas, and other;
- Integrated electric, gas, and combination utilities;
- Diversified energy and diversified nonenergy; and
- Energy merchant/power developer/trading and marketing companies.

The average business profile scores for transmission and distribution companies and transmission-only companies are lower on the scale than the previous averages, while the average business profile scores for integrated utilities, diversified energy, and energy merchants and developers are higher.

Chart 5

Diversified Energy and Diversified Non-Energy

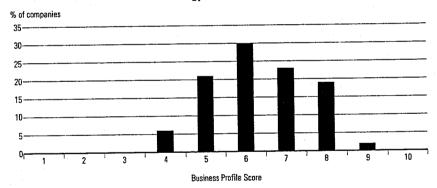
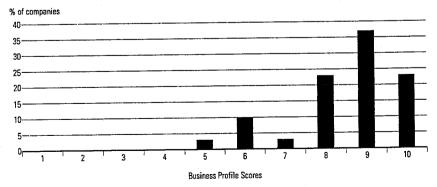


Chart 6
Energy Merchant/Developers/Trading and Marketing



See pages 16 to 19 for the company ranking list of business profile scores segmented by industry sub-sector and ranked in order of credit rating, outlook, business profile score, and relative strength.

#### **Business Profile Score Methodology**

Standard & Poor's methodology of determining corporate utility business risk is anchored in the assessment of certain specific characteristics that define the sector. We assign business profile scores to each of the rated companies in the utility and power sector on a 10-point scale, where '1' represents the lowest risk and '10' the highest risk. Business profile scores are assigned to all rated utility and power companies, whether they are holding companies, subsidiaries, or stand-alone corporations. For operating subsidiaries and stand-alone companies, the score is a bottom-up assessment. Scores for families of companies are a composite of the operating subsidiaries' scores. The actual credit rating of a company is analyzed, in part, by comparing the business profile score with the risk-adjusted financial guidelines.

For most companies, business profile scores are assessed using five categories; specifically, regulation, markets, operations, competitiveness, and management. The emphasis placed on each category may be influenced by the

Table 1			·						
Revised Financi	ial Guideli	nes							
Funds from operation	ns/interest co	overage (x)							_
Business Profile		\A		A		BB			BB
1	3	2.5	2.5		1.5	1.5	1		
2	4	3	. 3		2	2	1		
3	4.5	3.5	3.5		2.5	2.5	1.5	1.5.	1
4	5	4.2	4.2		3.5	3.5	2.5	2.5	1.5
5	5.5	4.5	4.5		3.8	3.8	2.8	2.8	1.8
6	6	5.2	5.2		4.2	4.2	3	3	2 2.2
7	- 8	6.5	6.5		45	4.5	3.2	3.2	
8	10	7.5	7.5		5.5	5.5	3.5	3.5	2.5 2.8
9			10		7	7	4	4 5	2.0 3
10			11		8	8	5	5	3
Funds from operation	n/total debt (	%)							
<b>Business Profile</b>		AA		A		BB			BB
1	20	15	15		10	10	5		
2	25	20	20		12	12	8	10	5
3	30	25	25		15	15	10	10	8
4	35	28	28		20	20	12	12	10
5	40	30	30		22	22	15	15 10	12
6	45	35	35		28	28	18	18	15
7	55	45	45		30	30	20	20 25	15
8	70	55	55		40	40	25		20
9			65		45	45	30	30 40	20 25
10			70		55	55	40	40	25
Total debt/total cap	ital (%)						_		
<b>Business Profile</b>		AA		A			3 <b>B</b>		BB
1	48	55	55		60	60	70		
2	45	52	52		58	58	68	65	70
3	42	50	50		55	55	65 62		68
4	38	45	45		52	52	62	62 60	65
5	35	42	42		50	50	60	58	62
- 6	32	40	40		48	48	58	55	60
7	30	38	38		45	45	55 52	55 52	58
8	25	35	35		42	42	52 50	52 50	55
9			32		40	40	50	50 48	52
10			25		35	35	48	40	52

dominant strategy of the company or other factors. For example, for a regulated transmission and distribution company, regulation may account for 30% to 40% of the business profile score because regulation can be the singlemost important credit driver for this type of company. Conversely, competition, which may not exist for a transmission and distribution company, would provide a much lower proportion (e.g., 5% to 15%) of the business profile score.

For certain types of companies, such as power generators, power developers, oil and gas exploration and production companies, or nonenergy-related holdings, where these five components may not be appropriate, Standard & Poor's will use other, more appropriate methodologies. Some of these companies are assigned business profile scores that are useful only for relative ranking purposes.

As noted above, the business profile score for a parent or holding company is a composite of the business profile scores of its individual subsidiary companies. Again, Standard & Poor's does not apply rigid guidelines for deter-

mining the proportion or weighting that each subsidiary represents in the overall business profile score. Instead, it is determined based on a number of factors. Standard & Poor's will analyze each subsidiary's contribution to FFO, forecast capital expenditures, liquidity requirements, and other parameters, including the extent to which one subsidiary has higher growth. The weighting is determined case-by-case.

Ronald M. Barone
New York (1) 212-438-7662
Richard W. Cortright, Jr.
New York (1) 212-438-7665
Suzanne G. Smith
New York (1) 212-438-2106
John W. Whitlock
New York (1) 212-438-7678
Andrew Watt
New York (1) 212-438-7868
Arthur F. Simonson
New York (1) 212-438-2094

## PROXY GROUP OF SIX AUS UTILITY REPORTS WATER COMPANIES CAPITALIZATION AND FINANCIAL STATISTICS (1) 1999 - 2003, INCLUSIVE

	<u>2003</u>	2002 (MILLIO	<u>2001</u> NS OF DOLLARS)	2000	<u>1999</u>	
CAPITALIZATION STATISTICS						
AMOUNT OF CAPITAL EMPLOYED  TOTAL PERMANENT CAPITAL  SHORT-TERM DEBT  TOTAL CAPITAL EMPLOYED	\$470.63 \$32.07 \$502.69	\$407.79 <u>\$35.13</u> <u>\$442.92</u>	\$375.00 \$30.67 \$405.67	\$331.41 <u>\$26.75</u> <u>\$358.16</u>	\$292.07 <u>\$24.88</u> <u>\$316.95</u>	
INDICATED AVERAGE CAPITAL COST RATES (2) TOTAL DEBT PREFERRED STOCK CAPITAL STRUCTURE RATIOS	6,02 % 3.98	6.27 % 5.73	6.84 % 5.31	7.42 % 5.20	7.64 % 5.40	<u>5 YEAR</u> AVERAGE
BASED ON TOTAL PERMANENT CAPITAL:  LONG-TERM DEBT  PREFERRED STOCK  COMMON EQUITY  TOTAL	54,07 % 0,49 <u>45,44</u> 100,00 %	54.19 % 0.57 <u>45.24</u> 100.00 %	54.26 % 0.76 <u>44.98</u> 100.00 %	52.09 % 0.88 47.03 100.00 %	51.27 % 0.98 <u>47.75</u> 100.00 %	53.18 % 0.74 <u>46.09</u> 100.00 %
BASED ON TOTAL CAPITAL: TOTAL DEBT, INCLUDING SHORT-TERM PREFERRED STOCK COMMON EQUITY TOTAL	57,27 % 0,47 <u>42,26</u> 100,00 %	57.19 % 0.52 <u>42.29</u> 100.00 %	57.64 % 0.70 <u>41.66</u> 100.00 %	54.89 % 0.84 44.27 100.00 %	54.12 % 0.93 <u>44.95</u> 100.00 %	56.22 % 0.69 <u>43.09</u> 100.00 %
FINANCIAL STATISTICS						
FINANCIAL RATIOS - MARKET BASED  EARNINGS / PRICE RATIO  MARKET / AVERAGE BOOK RATIO  DIVIDEND YIELD  DIVIDEND PAYOUT RATIO	3,85 % 232.50 3,28 87.80	4.90 % 221.41 3.63 74.83	4.92 % 215.22 3.81 79.40	5.33 % 191.35 4.26 83.28	5.25 % 204.41 4.02 75.53	4.85 % 212.98 3.80 80.17
RATE OF RETURN ON AVERAGE BOOK COMMON EQUITY	8.97 %	10.58 %	10.35 %	10.09 %	10.82 %	10.16 %
FUNDS FROM OPERATIONS / INTEREST COVERAGE (3)	3,38 x	3.37 x	3.27 x	3.10 x	3.20 x	3.26 x
FUNDS FROM OPERATIONS / TOTAL DEBT (4)	13,57 %	14.00 %	14.07 %	14.60 %	15.57 %	14.36 %
TOTAL DEBT / TOTAL CAPITAL	57,27 %	57.19 %	57.64 %	54.89 %	54.12 %	56.22 %

See Page 2 for notes.

Exhibit No. \_\_\_\_ Schedule PMA-3 Page 2 of 3

### Proxy Group of Six AUS Utility Reports Water Companies Capitalization and Financial Statistics 1999-2003, Inclusive

#### Notes:

- (1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.
- (2) Computed by relating actual long-term debt interest or preferred stock dividends booked to average of beginning and ending long-term debt or preferred stock reported to be outstanding.
- (3) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges divided by interest charges.
- (4) Funds from operations (as defined in Note 3) as a percentage of total debt.

#### Selection Criteria:

The basis of selection was to include those water companies: 1) which are included in the Water Company Group of C. A. Turner Public Utility Reports (March 2005); 2) which have Value Line (Standard Edition) five-year EPS growth rate projections or Thomson FN / First Call consensus five-year EPS growth rate projections; and 3) which have more than 70% of their 2003 operating revenues derived from water operations.

The following six water companies met the above criteria:

American States Water Co. Aqua America, Inc. Artesian Resources, Inc. California Water Service Group Middlesex Water Company York Water Co.

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus / Research Insight Database

Company Annual Forms 10K

### Capital Structure Based upon Total Capital for the Proxy Group of Six AUS Utility Reports Water Companies for the Years 1999 through 2003

	<u>2003</u>	<u>2002</u>	2001	2000	1999	5 YEAR AVERAGE
American States Water Co.				40.50.00	47.00.0/	51.70 %
Long-Term Debt	53.41 %	55.89 %	58 74 %	42 50 %	47.98 % 6.01	7.29
Short-Term Debt	9.72	6 22	3.72	10.80	0.56	0.27
Preferred Stock	0.00	0.00	0.35	0.46 46.24	45.45	40.73
Common Equity	<u>36.87</u>	<u>37.89</u>	37.19	100.00 %	100.00 %	100.00 %
Total Capital	100.00 %	<u>100.00</u> %	<u>100.00</u> %	100.00 %	100.00 %	100.00
Aqua America, Inc.			47 07 04	40.49.8/	47.44 %	48.60 %
Long-Term Debt	49.35 %	50.36 %	47 67 %	48.18 % 8.84	11.48	9.20
Short-Term Debt	6.47	9.39	9.83	0.46	0.48	0.25
Preferred Stock	0.06	0.06	0.17	42.52	40.60	41.95
Common Equity	44.12	<u>40.19</u>	42.33		100.00 %	100.00 %
Total Capital	<u>100.00</u> %	<u>100.00</u> %	<u>100.00</u> %	<u>100.00</u> %	100.00 %	100.00 A
Artesian Resources Corp.			40.44.84	50.74 N	46 49 %	52.66 %
Long-Term Debt	54 83 %	53.82 %	49.44 %	58.71 % 3.65	10.69	8.73
Short-Term Debt	9.39	3.24	16.68	3.65 0.76	1.00	0.50
Preferred Stock	0 00	0.17	0.56	36.88	41.82	38.11
Common Equity	<u>35.78</u>	<u>42.77</u>	33.32	100.00 %	100.00 %	100.00 %
Total Capital	100.00 %	<u>100.00</u> %	<u>100.00</u> %	100.00 %	100.00	100.00
California Water Services Group		·	40.00.0	46.69 %	45 05 %	48.62 %
Long-Term Debt	51.77 %	51.25 %	48 36 %	3 59	3.85	4.24
Short-Term Debt	1.22	7.42	5.11 0.81	0.85	0.98	0.80
Preferred Stock	0.66	0.71		48.87	50.12	46.34
Common Equity	<u>46.35</u>	<u>40.62</u>	<u>45.72</u> 100.00 %	100.00 %	100.00 %	100.00 %
Total Capital	<u>100.00</u> %	<u>100.00</u> %	100.00 %	100.00 78	100.00	100.00
Middlesex Water Company		47.00.04	40.70 %	50.48 %	51.88 %	49.98 %
Long-Term Debt	50 57 %	47.29 %	49.70 %	3.71	1.26	5.66
Short-Term Debt	6.42	9.47	7 43 2 28	2.49	2.55	2.32
Preferred Stock	2.09	2.18	40.59	43.32	44.31	42.04
Common Equity	<u>40.92</u>	41.06	100.00 %	100.00 %	100.00 %	100.00 %
Total Capital	<u>100.00</u> %	<u>100.00</u> %	100.00 %	100.00 76	100.00	100.00
York Water Company	44 40 11	4E 00 8/	46.35 %	48 29 %	50.41 %	46.29 %
Long-Term Debt	41.40 %	45.00 %	2.83	3.90	2.20	4.35
Short-Term Debt	9.07	3.77	2.63 0.00	0.00	0.00	0.00
Preferred Stock	0.00	0.00		47.81	47.39	49.36
Common Equity	<u>49.53</u>	<u>51.23</u>	<u>50.82</u> 100.00 %	100.00 %	100.00 %	100.00 %
Total Capital	100.00 %	<u>100.00</u> %	100.00 %	100.00 %	100.00 76	100.00
Proxy Group of Six AUS Utility						
Reports Water Companies		F0 00 01	E0.04.0/	40 44 9/	48 21 %	49 64 %
Long-Term Debt	50.22 %	50.60 %	50.04 %	49.14 % 5.75	48.21 % 5.91	6.58
Short-Term Debt	7.05	6.59	7.60	5.75 0.84	0.93	0.69
Preferred Stock	0.47	0.52	0.70	0.84 44.27	44.95	43.09
Common Equity	42.26	<u>42.29</u>	41.66		100.00 %	100.00 %
Total Capital	<u>100.00</u> %	<u>100.00</u> %	<u>100.00</u> %	<u>100.00</u> %	100.00 %	100.00 //

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus / Research Insight Data Base Company Annual Forms 10K (Sinking Fund Requirements)

### PROXY GROUP OF THREE VALUE LINE (STANDARD EDITION) WATER COMPANIES CAPITALIZATION AND FINANCIAL STATISTICS (1) 1999 - 2003, INCLUSIVE

	2003	2002 (MILLIO)	2001 NS OF DOLLARS)	2000	<u>1999</u>	
CAPITALIZATION STATISTICS						
AMOUNT OF CAPITAL EMPLOYED  TOTAL PERMANENT CAPITAL  SHORT-TERM DEBT  TOTAL CAPITAL EMPLOYED	\$812.16 <u>\$52.97</u> <u>\$865.13</u>	\$697.46 \$62.16 \$759.62	\$643.70 \$50.56 \$694.26	\$560.38 <u>\$49.53</u> \$609.91	\$487.73 <u>\$45.89</u> <u>\$533.62</u>	
INDICATED AVERAGE CAPITAL COST RATES (2) TOTAL DEBT PREFERRED STOCK	5.90 % 2.83	6.04 % 3.84	6.66 % 4.03	7.44 % 3.76	8.00 % 3.90	5 YEAR AVERAGE
CAPITAL STRUCTURE RATIOS  BASED ON TOTAL PERMANENT CAPITAL:  LONG-TERM DEBT  PREFERRED STOCK  COMMON EQUITY  TOTAL	54.78 % 0.24 <u>44.98</u> 100.00 %	56.84 % 0.28 42.88 100.00 %	54.95 % 0.47 <u>44.58</u> 100.00 %	49.65 % 0.63 49.72 100.00 %	50.50 % 0.72 <u>48.78</u> 100.00 %	53.34 % 0.47 <u>46.19</u> 100.00 %
BASED ON TOTAL CAPITAL: TOTAL DEBT, INCLUDING SHORT-TERM PREFERRED STOCK COMMON EQUITY TOTAL	57.31 % 0.24 42.45 100.00 %	60.18 % 0.25 <u>39.57</u> 100.00 %	57.81 % 0.44 <u>41.75</u> 100.00 %	53.53 % 0.59 45.88 100.00 %	53.93 % 0.68 <u>45.39</u> 100.00 %	56.55 % 0.44 <u>43.01</u> 100.00 %
FINANCIAL STATISTICS						
FINANCIAL RATIOS - MARKET BASED  EARNINGS / PRICE RATIO  MARKET / AVERAGE BOOK RATIO  DIVIDEND YIELD  DIVIDEND PAYOUT RATIO	3.89 % 225.26 3.32 86.86	5.17 % 217.33 3.63 69.87	4.70 % 225.22 3.61 78.54	5.47 % 206.93 3.77 69.17	5.00 % 221.95 3.65 71.36	4.85 % 219.34 3.60 75.16
RATE OF RETURN ON AVERAGE BOOK COMMON EQUITY	8.86 %	11.10 %	10.40 %	11.37 %	11.28 %	10.60 %
FUNDS FROM OPERATIONS / INTEREST COVERAGE (3)	3.53 x	3.63 x	3.57 x	3.40 x	3.57 x	3.54 x
FUNDS FROM OPERATIONS / TOTAL DEBT (4)	14.60 %	14.73 %	15.23 %	16.70 %	18.17 %	15.89 %
TOTAL DEBT / TOTAL CAPITAL	57.31 %	60.18 %	57.81 %	53.53 %	53.93 %	56.55 %

See Page 2 for notes.

### Proxy Group of Three Value Line (Standard Edition) Water Companies Capitalization and Financial Statistics 1999-2003, Inclusive

#### Notes:

- (1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.
- (2) Computed by relating actual long-term debt interest or preferred stock dividends booked to average of beginning and ending long-term debt or preferred stock reported to be outstanding.
- (3) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges divided by interest charges.
- (4) Funds from operations (as defined in Note 3) as a percentage of total debt.

### Selection Criteria:

The basis of selection was to include those water companies: 1) which are included in the Value Line (Standard Edition).

The following three water companies met the above criteria:

American States Water Co. Agua America, Inc. California Water Service Group

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus / Research

Insight Database

Company Annual Forms 10K

### Capital Structure Based upon Total Capital for the Proxy Group of Three Value Line (Standard Edition) Water Companies for the Years 1999 through 2003

	2003	2002	2001	2000	<u>1999</u>	5 YEAR AVERAGE
American States Water Co.  Long-Term Debt Short-Term Debt Preferred Stock Common Equity Total Capital	53.41 % 9.72 0.00 <u>36.87</u> 100.00 %	55.89 % 6.22 0.00 <u>37.89</u> 100.00 %	58.74 % 3.72 0.35 37.19 100.00 %	42.50 % 10.80 0.46 46.24 100.00 %	47.98 % 6.01 0.56 45.45 100.00 %	51.70 % 7.29 0.27 <u>40.73</u> 100.00 %
Aqua America, Inc. Long-Term Debt Short-Term Debt Preferred Stock Common Equity Total Capital	49.35 %	50.36 %	47.67 %	48.18 %	47.44 %	48 60 %
	6.47	9.39	9.83	8.84	11.48	9 20
	0.06	0.06	0.17	0.46	0.48	0 25
	<u>44.12</u>	40.19	42.33	<u>42.52</u>	40.60	<u>41 95</u>
	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100 00 %
California Water Services Group Long-Term Debt Short-Term Debt Preferred Stock Common Equity Total Capital	51.77 %	51 25 %	48.36 %	46 69 %	45.05 %	48 62 %
	1.22	7 42	5.11	3 59	3.85	4 24
	0.66	0.71	0.81	0 85	0.98	0 80
	46.35	40.62	<u>45.72</u>	48.87	50.12	46.34
	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Proxy Group of Three Value Line (Standard Edition) Water Companies Long-Term Debt Short-Term Debt Preferred Stock Common Equity Total Capital	51.51 %	52 50 %	51 59 %	45.79 %	46 82 %	49.64 %
	5.80	7 68	6 22	7.74	7 11	6.91
	0.24	0 25	0 44	0.59	0 68	0.44
	42.45	<u>39 57</u>	41.75	<u>45.88</u>	<u>45 39</u>	43.01
	100.00 %	100.00 %	100.00 %	100.00 %	100 00 %	100.00 %

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus / Research Insight Data Base Company Annual Forms 10K (Sinking Fund Requirements)

#### Carolina Water Service, Inc. Hypothetical Example of the Inadequacy of A DCF Return Rate Related to Book Value When Market Value is Greater / Less than Book Value

1

<u>2</u>

<u>3</u>

Line No.		Mar	ket Value_	N	ook Value with larket to Book Ratio of 180%	Book Value with Market to Book Ratio of 80%	
1.	- Per Share	\$	24.00	\$	13.33	\$ 30.00	
2.	DCF Cost Rate (1)		10.50%		10.50%	10.50%	
<b>3</b> .	Return in Dollars	\$	2.520	\$	1.400	\$ 3.150	
4.	Dividends (2)	\$	0.840	\$	0.840	\$ 0.840	
5.	Growth in Dollars	\$	1.680	\$	0.560	\$ 2.310	
6.	Return on Market Value		10.50%		5.83% (3)	13.13% (4)	
7.	Rate of Growth on Market Value		7.00% (5)		2.33% (6)	9.63% (7)	

- Notes: (1) Comprised of 3.5% dividend yield and 7.0% growth.
  - (2) \$24.00 \* 3.5% yield = \$0.840.
  - (3) \$1.400 / \$24.00 market value = 5.83%.
  - (4) \$3.150 / \$24.00 market value = 13.13%.
  - (5) Expected rate of growth per market based DCF model.
  - (6) Actual rate of growth when DCF cost rate is applied to book value (\$1.400 possible earnings \$0.840 dividends = \$0.560 for growth / \$24.00 market value = 2.33%).
  - (7) Actual rate of growth when DCF cost rate is applied to book value (\$3.150 possible earnings \$0.840 dividends = \$2.310 for growth / \$24.00 market value = 9.63%)

### <u>Carolina Water Service. Inc.</u> Indicated Common Equity Cost Rate Through Use of the Single Stage Discounted Cash Flow Model for the Proxy Group of Sk. AUS Utility Reports Companies and the Proxy Group of Three Value Line (Standard Edition) Water Companies

#### Based upon Historical and Projected Growth in DPS, EPS, and BR+SV

54355 4	2011 1 101011 201			_	5
	1	2	<u>3</u>	4	2
	Average Dividend Yield (1)	Dividend Growth Component (2)	Adjusted Dividend Yield (3)	Growth Rate	Indicated Common Equity Cost <u>Rate (5)</u>
Proxy Group of Six AUS Utility Reports Water Companies					
American States Water Co Aqua America, Inc. Artesian Resources Corp. California Water Services Group Middlesex Water Company York Water Company	35 % 21 32 34 3.7 3.3	0.1 % 0.1 0.1 0.1 0.1 0.1	3.6 % 22 3.3 3.5 3.8 3.4 3.3 %	4.7 % 10.0 6.4 5.3 3.1 4.7 5.7 %	8.3 % 12.2 9.7 8.8 6.9 8.1 10.2 % (6)
Average	3.2 %	0.1 %	3.3 %		10.2 20 (0)
Proxy Group of Three Value Line (Standard Edition) Water Companies					8.3 %
American States Water Co Aqua America, Inc. California Water Services Group	3.5 % 2.1 3.4	0.1 % 0.1 0.1	36 % 2.2 3.5	4.7 % 10.0 5.3	12.2 
Average	3.0 %	0.1 %	3.1 %	6.7 %	10.5 % (6)
	1 Average Dividend Yield (1)	Projected Growth in  2  Dividend Growth Component (2)	3 Adjusted Dividend Yield (3)	4 Growth Rate (4)	5 Indicated Common Equity Cost Rate (5)
Proxy Group of Six AUS Utility Reports Water Companies					
American States Water Co. Aqua America, inc. Artesian Resources Corp California Water Services Group Middlesex Water Company York Water Company Average	3.5 % 2.1 3.2 3.4 3.7 3.3 3.2 %	0.1 % 0.1 0.1 0.1 0.1 0.1 0.1	3.6 % 2.2 3.3 3.5 3.8 3.4 3.3 %	63 % 94 90 83 60 7.0	9.9 % 11.6 12.3 11.8 9.8 10.4 11.0 % (6)
Proxy Group of Three Value Line (Standard Edition) Water Companies					
American States Water Co. Aqua America, Inc. California Water Services Group	3.5 % 2.1 3.4	0.1 % 0.1 0.1	3.6 % 2.2 3.5 3.1 %	6.3 % 9.4 <u>8.3</u> 8.0 %	9.9 % 11.6 11.8 11.1 % (6)
Average	3.0 %	0.1 %	3.1 70	0.0 /6	, 1, 1 N (0)
Conclusion Proxy Group of Six AUS Utility Reports Water Companies					10.6 %
Proxy Group of Three Value Line (Standard Edition) Water Companies					10.8 %

#### Notes: (1) From Schedule PMA-7.

- (2) This reflects a growth rate component equal to one-half the conclusion of growth rate (from page 1 of Schedule PMA-9) x Column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for American States Water Co., 3.5% x (1/2 x 4.7%) = 0.1%.
- (3) Column 1 + Column 2.
- (4) From page 1 Schedule PMA-9.
- (5) Column 3 + Column 4
- (6) Includes only those indicated common equity cost rates which are greater than 8.6%, i.e., 200 basis points above the prospective yield on A rated Moody's public utility bonds of 6.6% (from page 1 of Schedule PMA-10)

#### Carolina Water Service, Inc. Derivation of Dividend Yield for Use in the Discounted Cash Flow Model

		Dividend Yie	eld
		Average	<b>A</b>
		of	Average
	Spot	Last 3	Dividend
	(3/28/05) (1)	Months (2)	Yield (3)
Proxy Group of Six AUS Utility Reports Water Companies			
American States Water Co.	3.5 %	3.4 %	3.5 %
Aqua America, Inc.	2.1	2.1	2.1
Artesian Resources Corp.	3.3	3.0	3.2
California Water Services Group	3.4	3.3	3.4
Middlesex Water Company	3.7	3.6	3.7
York Water Company	3.3	3.3	3.3
Average	<u>3.2</u> %	<u>3.1</u> %	<u>3.2</u> %
Proxy Group of Three Value Line (Standard Edition) Water Companies American States Water Co.	3.5	3.4 %	3.5 %
Aqua America, Inc	2.1	2.1	2.1
California Water Services Group	3.4	3.3	3.4
Average	3.0 %	2.9 %	<u>3.0</u> %

- Notes: (1) The spot dividend yield is the current annualized dividend per share divided by the spot market price on 3/28/05.
  - (2) The average 3-month dividend yield was computed by relating the indicated annualized dividend rate and market price on the last trading day of each of the three months ended February 28, 2005
  - (3) Equal weight has been given to the 3-month average and spot dividend yield. This provides recognition of current conditions, but does not place undue emphasis thereon.

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus Research Insight Database finance.yahoo.com

### Carolina Water Service, Inc. Current Institutional Holdings (1) and Individual Holdings (2) for the Proxy Group of Six AUS Utility Reports Water Companies, the Proxy Group of Three Value Line (Standard Edition) Water Companies

	1	<u>2</u>
	March 2005 Percentage of Institutional Holdings (1)	March 2005 Percentage of Individual Holdings (2)
Proxy Group of Six AUS Utility Reports Water Companies		
American States Water Co.	35.9 %	64.1 %
Aqua America	29.0	71.0
Artesian Resources Corp.	10.4	89.6
California Water Service Group	24.3	757
Middlesex Water Company	171	82.9
York Water Company	<u>6.3</u>	93.7
Average	20.5 %	<u>79.5</u> %
Proxy Group of Three Value Line (Standard Edition) Water Companies		
American States Water Co.	35.9 %	64.1 %
Aqua America	29.0	71.0
California Water Service Group	24.3	<u>75.7</u>
Average	29.7 %	<u>70.3</u> %

Notes:

- (1) The percentage of institutional holdings is calculated by dividing the number of shares held by institutions by the number of shares outstanding.
- (2) (1 column 1).

Source of Information: yahoo.investor.reuters.com, Updated March 29, 2005

### Carolina Water Service, Inc. Historical and Projected Growth

	1	2	<u>3</u>	4	5	<u>6</u>		<u>7</u> .	<u>8</u>	9	<u>10</u>	<u>11</u>	<u>12</u>	13 Average of
		Historical Five bwth Rate (1)	Five Year Historical BR + SV (2)	Value Line Pro 03 to 2007- Rate	09 Growth	ThomsonFN / Mean Cons Projected Five \ Rate	sensus 'ear Growth	Average Projected Five Year Growth Rate in EPS (3)	Projected Five Year BR + SV (4)	Ran	ge of Growth Ra High	tes Midpoint	Average of all Growth Rates	Mipdoint and Average of all Growh Rates (9)
	DPS	EPS		DP\$	EPS	EPS	No. of Est.							
Proxy Group of Six AUS Utility Reports Water Companies  American States Water Co. Aqua America, Inc. Artesian Resources Corp. California Water Services Group Middlesex Water Company York Water Company Average	1.0 % 6.0 4.4 (5) 1.0 2.5 2.9 (5) 3.0 %	1.5 % 9.5 5.7 (5) (6.5) 0.5 4.2 (5) 4.3 % (8)	4.4 % 15.6 5.4 4.9 2.3 3.2 6.0 %	1.5 % 7.0 NA 1.0 NA NA NA	9.5 % 9.0 NA 10.0 NA NA 9.5 %	3.0 % 9.8 9.0 6.5 6.0 7.0 6.9 %	[1] [4] [1] [4] [1]	6.3 % 9.4 9.0 8.3 6.0 7.0	7.1 % 7.1 NA 7.2 NA NA 7.1 %	1.0 % 6.0 4.4 1.0 (8) 0.5 2.9 2.6 %	9.5 % 15.6 9.0 10.0 (8) 6.0 7.0 9.5 %	5.3 % 10.8 6.7 5.5 3.3 5.0 6.1 %	4.0 % 9.1 6.1 5.1 (8) 2.8 4.3 5.2 %	4.7 % 10.0 6.4 5.3 (8) 3.1 4.7 5.7 %
Proxy Group of Three Value Line (Standard Edition) Water Companies American States Water Co. Aqua America, Inc. California Water Services Group	1.0 % 6.0 1.0	1.5 % 9.5 (6.5)	4.4 % 15.6 4.9	1.5 % 7.0 1.0	9.5 % 9.0 10.0	3.0 % 9.8 6.5	[1] [4] [4]	6.3 % 9.4 8.3	7.1 % 7.1 7.2	1.0 % 6.0 1.0 (8)	9.5 % 15.6 10.0 (8)	5.3 % 10.8 5.5	4.0 % 9.1 5.1 (8)	4.7 % 10.0 (8) 5.3
Average	2.7_%	<u>5.5</u> %(8)	<u>8.3</u> %	3.2 %	<u>9.5</u> %	<u>6.4</u> %		8.0 %	<u>7,1</u> %	<u>2.7</u> % _	11.7 %	<u>7.2</u> %	6.1_%	6.7 %

- Notes: (1) As shown on pages 8 through 12 of this Schedule. Historical growth rates are five-year compound growth rates.
  (2) From page 2 of this Schedule.
  (3) Average of Columns 5 and 6.
  (4) From page 6 of this Schedule.
  (5) Calculated using the same methodology as Value Line Investment Survey, i.e., three-year base periods ending 2003.
  (6) Average of Columns 1, 2, 3, 4, 5, 6, and 8.

  - (7) From Column 7.

  - (8) Excludes negatives.
    (9) Average of Column 11 and Column 12.

Source of Information: Value Line Investment Survey, January 28, 2005, Standard Edition and Small- and Mid-Cap Edition ThomsonFN First Call Earnings, ec.thomsonfn.com, updated March 26, 2005

### Carolina Water Service, Inc. Calculation of Historical BR + SV

	1	2	3	<u>4</u>	<u>5</u>
	BR (1)	S Factor (2)	V Factor (3)	SV (4)	BR + SV (5)
Proxy Group of Six AUS Utility Reports Water Companies					
American States Water Co.	3.3 %	2.6 %	43.4 %	1.1 %	4.4 %
Aqua America, Inc.	5.3	15.9	65.0	10.3	15.6
Artesian Resources Corp.	2.2	8.0	40.6	3.2	5.4
California Water Services Group	1.8	6.3	48.8	3.1	4.9
Middlesex Water Company	1.5	1.5	56.4	08	2.3
York Water Company	2.0	2.1	55.0	1.2	<u>3.2</u>
Average	2.7 %	6.1 %	51.5 %	3.3 %	<u>6.0</u> %
Proxy Group of Three Value Line (Standard Edition) Water Companies					
American States Water Co.	3.3 %	2.6 %	43.4 %	1.1 %	4.4 %
Aqua America, Inc.	5.3	15.9	65.0	10.3	15.6
California Water Services Group	1.8	6.3	48.8	3.1	<u>4.9</u>
Average	3.5 %	8.3 %	52.4 %	4.8 %	<u>8.3</u> %

- Notes: (1) From column 6, page 3 of this Schedule.
  (2) From column 12, page 4 of this Schedule.
  (3) From column 7, page 5 of this Schedule.
  (4) Column 2 \* column 3.
  (5) Column 1 + column 4.

# Carolina Water Service, Inc. Historical Internal Growth Rate (1), i.e., BR, for the Proxy Group of Six AUS Utility Reports Water Companies and the Proxy Group of Three Value Line (Standard Edition) Water Companies for the Years 1999 -2003

	1	<u>2</u>	3	<u>4</u>	· <u>5</u>	€
	2003	200 <u>2</u>	2001	2000	1999	Five-Year Average 1999-2003 Internal Growth Rate. i.e., BR
Proxy Group of Six AUS Utility	2000		<del></del>			
Reports Water Companies						
American States Water Co.						
Common Equity Return Rate	5 59 %	983 %	10 37 %	10.24 %	10.23 %	
Retention Ratio	(12.98)	35.04	35.65	32.06	28.40	0.0.07.00
Internal Growth Rate (1)	(0.73)	3.44	3.70	3.28	2.91	33 % (2)
Agua America, Inc.						
Common Equity Return Rate	12.30 %	13.92 %	13.34 %	13.32 %	12.17 %	
Retention Ratio	43.61	45.22	42 95	42 40	27.15	
Internal Growth Rate (1)	5.36	6.29	5.73	5.65	3.30	53
Artesian Resources Corp.						
Common Equity Return Rate	7.41 %	9.67 %	9.80 %	7.39 %	9.74 %	
Retention Ratio	19.24	34.96	31 35	8.12	27.74	
Internal Growth Rate (1)	1.43	3.38	3.07	0.60	2.70	2.2
California Water Services Group						
Common Equity Return Rate	8.68 %	9.56 %	7 49 %	10.54 %	11.43 %	
Retention Ratio	8.79	10.13	(14 22)	18.03	30.37	4.0.70)
Internal Growth Rate (1)	0.76	0.97	(1.07)	1.90	3 47	1 8 (2)
Middlesex Water Company						
Common Equity Return Rate	8 17 %	10.10 %	9.37 %	7.16 %	11.05 %	
Retention Ratio	(6.51)	13.33	5.88	(21.76)	22.73 2.51	1 5 (2)
Internal Growth Rate (1)	(0.53)	1.35	0.55	(1.56)	2.51	13 (2)
York Water Company				44.00 %	40.04.00	
Common Equity Return Rate	11 66 %	10.37 %	11.73 %	11.88 % 21.50	10.31 % 10.46	
Retention Ratio	21.04 2.45	12.32 1.28	21.97 2.58	21.50	1.08	2.0
Internal Growth Rate (1)	2.45	1.20	2.30	2.55	1.00 _	2.7 %
Average					-	2.1 70
Proxy Group of Three Value Line (Standard Edition) Water						
American States Water Co.						
Common Equity Return Rate	5.59 %	9.83 %	10 37 %	10 24 %	10.23 %	
Retention Ratio	(12 98)	35 04	35.65	32.06	28.40	
Internal Growth Rate (1)	(0.73)	3 44	3.70	3.28	2.91	3.3 % (2)
Aqua America, Inc.						
Common Equity Return Rate	12 30 %	13.92 %	13.34 %	13.32 %	12.17 %	
Retention Ratio	43.61	45.22	42.95	42.40	27.15	<b>.</b>
Internal Growth Rate (1)	5.36	6 29	5.73	5.65	3.30	5.3
California Water Services Group						
Common Equity Return Rate	8.68 %	9.56 %	7.49 %	10.54 %	11.43 %	
Retention Ratio	8.79	10 13	(14.22)	18.03 1.90	30.37 3.47	1.8 (2)
Internal Growth Rate (1)	0 76	0.97	(1:07)	1 80	3.47	
Average					-	3.5 %

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus / Research Insight Database

Notes: (1) The internal growth rate is calculated by multiplying the common equity return rate by the retention ratio (100% minus the dividend payout ratio). All data are on a consolidated basis

<sup>(2)</sup> Excludes negatives.

Carolina Water Service, Inc.
Calculation of Five Year Average Growth In Common Shares Outstanding (1), I.e., S Factor

		1	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	7	<u>8</u>	9	<u>10</u>	<u>11</u>	<u>12</u> Five Year
		1998 Common Shares Outstanding (1)	97-98 Growth	1999 Common Shares Outstanding (1)	98-99 Growth	2000 Common Shares Outstanding (1)	99-00 Growth	2001 Common Shares Outstanding (1)	00-01 Growth	2002 Common Shares Outstanding (1)	01-02 Growth	2003 Common Shares Outstanding (†)	Average Common Share Growth
Ar Ar Ca	oxy Group of Six AUS Utility sports Water Companies nerican States Water Co. jua America, inc. tesian Resources Corp. alifornia Water Services Group ddlesex Water Company ork Water Company Average	13.437 54.154 2.704 12.619 9.794 5.960	0.0 % 47.9 10.8 2.5 2.1 (1.0)	13,437 80,104 2,997 12,936 10,002 5,902	12.5 % 4.7 0.8 17.1 1.0 1.8	15.420 83.869 3.020 15.446 10.098 6.010	0.0 % 1.9 1.3 0.2 0.7 5.0	15.120 85.483 3.060 15.182 10.168 6.308	0.4 % (0.7) 26.2 0.0 1.8 0.9	15, 181 84,896 3,863 15,182 10,356 6,365	0.2 % 9.1 1.0 11.5 2.0 0.8	15.212 92.589 3.901 16.932 10.567 6.419	2.6 % 15.9 (2) 8.0 6.3 1.5 2.1 (2)
Ar Ac	oxy Group of Three Value Line tandard Edition) Water Companies merican States Water Co. qua America, Inc. alifornia Water Services Group Average	13.437 54.154 12.619	0.0 % 47.9 2.5	13.437 80.104 12.936	12.5 % 4.7 17.1	15.120 83.869 15.146	0.0 % 1.9 0.2	15.120 85.483 15.182	0.4 % (0.7) 0.0	15.181 84.896 15.182	0.2 % 9.1 11.5	15.212 92.589 16.932	2.6 % 15.9 (2) 6.3 8.3 %

Notes: (1) Year-end shares outstanding.
(2) Excludes negatives.

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus / Research Insight Database

### Carolina Water Service, Inc. Calculation of the Premium/Discount of a Company's Stock Price Relative to its Book Value, i.e., V Factor

	1	2	<u>3</u>	4	<u>5</u>	<u>6</u>	7
	1999 Market to Book Ratio (1)	2000 Market to Book Ratio (1)	2001 Market to Book Ratio (1)	2002 Market to Book Ratio (1)	2003 Market to Book Ratio (1)	Five Year Average Market to Book Ratio	V Factor (2)
Proxy Group of Six AUS Utility Reports Water Companies  American States Water Co. Aqua America, Inc. Artesian Resources Corp. California Water Services Group Middlesex Water Company York Water Company Average	177.2 % 287.1 168.0 201.5 218.3 174.4	170.8 % 252.9 163.3 197.1 209.9 154.2	174.8 % 303.5 163.8 197.4 236.9 214.9	180.6 % 289.8 162.1 181.6 232.9 281.5	180.3 % 295.6 184.5 199.8 247.9 286.9	176.7 % 285.8 168.3 195.5 229.2 222.4 213.0 %	43.40 % 65.00 40.60 48.80 56.40 55.00 51.50 %
Proxy Group of Three Value Line (Standard Edition) Water Companies  American States Water Co. Aqua America, Inc. California Water Services Group  Average	177.2 % 287.1 201.5	170.8 % 252.9 197.1	174.8 % 303.5 197.4	180.6 % 289.8 181.6	180.3 % 295.6 199.8	176.7 % 285.8 195.5 219.3 %	43.40 % 65.00 48.80 52.40 %

Notes: (1) Market to Book Ratio = average of yearly high-low market price divided by the average of beginning and ending year's balance of book common equity per share.

(2) (1 - (100 / column 6)).

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus / Research Insight Database

#### Carolina Water Service, Inc. Calculation of Projected BR + SV

	1	2	<u>3</u>	<u>4</u> .	<u>5</u>	<u>6</u>	7	<u>8</u>	9	<u>10</u>	<u>11</u>
	Outstar	n Shares nding (1) ,000)		<u> </u>	Projected 20	007 - 2009 (1)					
	Actual 2003	Projected 2007-2009	S Factor (2)	High Stock Price	Low Stock Price	Book Value	Average Stock Price (3)	V Factor (4)	SV (5)	BR (6)	BR + SV (7)
Proxy Group of Six AUS Utility Reports Water Companies  American States Water Co. Aqua America, Inc. Artesian Resources Corp. California Water Services Group Middlesex Water Company York Water Company Average	15.21 92.59 NA 16.93 10.48 6.42	19.00 100.00 NA 23.00 NA NA	4.6 % 1.6 NA 6.3 NA NA 4.2 %	30.00 35.00 NA 35.00 NA NA	20.00 20.00 NA 25.00 NA NA	17.50 8.80 NA 18.25 NA NA	\$25.00 27.50 NA 30.00 NA NA	30.0 % 68.0 NA 39.2 NA NA 45.7 %	1.4 % 1.1 NA 2.5 NA NA 1.7 %	5.7 % 6.0 NA 4.7 NA NA 5.5 %	7.1 % 7.1 NA 7.2 NA NA 7.1 %
Proxy Group of Three Value Line (Standard Edition) Water  American States Water Co. Aqua America, Inc. California Water Services Group  Average	15.21 92.59 16.93	19.00 100.00 23.00	4.6 % 1.6 6.3 4.2 %	\$30.00 35.00 35.00	\$20.00 20.00 25.00	\$17.50 8.80 18.25	\$25.00 27.50 30.00	30.0 % 68.0 39.2 45.7 %	1.4 % 1.1 2.5 1.7 %	5.7 % 6.0 4.7 5.5 %	7.1 % 7.1 7.2 7.1 %

NA = Not Available

Notes: (1) From pages 8 through 12 of this Schedule.

(1) From pages a through 12 or this Schedule.
(2) The S Factor is the six or five year compound growth rate between the 2003 and 2008 (mid-point of 2007-2009 projection) common shares outstanding.
(3) The Average Stock Price is the average of column 4 and column 5.
(4) (1 - (column 6 / column 7))
(5) Column 3 \* column 8.
(6) From page 9, column 14 of this Schedule.
(7) Column 9 + column 10.

(7) Column 9 + column 10.

Source of Information: Value Line Investment Survey, January 28, 2005, Standard Edition and Small- and Mid-Cap Edition

### Carolina Water Service, Inc. Projected Internal Growth Rate

	1	<u>2</u>	3	4	<u>5</u>	<u>6</u>	7	9	<u>9</u>	10	11	<u>12</u>	<u>13</u>	<u>14</u>
		2003			2007-2009						2007	-2009		
	Common Equity (%) (1)	Total Capital (\$ mill) (1)	Common Equity (\$ mill) (2)	Common Equity (%) (1)	Total Capital (\$ mill) (1)	Common Equity (\$ mill) (3)	Annual Common Equity Growth Rate (4)	ROE Adjustment Factor (5)	Return on Common Equity (1)	Return on Average Common Equity (6)	EPS (1)	DPS (1)	Retention Ratio (7)	Projected Internal Growth (8)
Proxy Group of Six AUS Utility Reports Water Companies American States Water Co. Aqua America, Inc. Artesian Resources Corp. California Water Services Group Middiesex Water Company York Water Company	48.00 % 48.80 NA 47.00 NA NA	\$442.30 1,355.70 NA 520.30 NA NA	\$212.30 658.87 NA 244.54 NA NA	48.00 % 46.00 NA 50.00 NA NA	\$700.00 1,380.00 NA 840.00 NA NA	\$336.00 634.90 NA 420.00 NA NA	9.62 % -0.74 NA 11.42 NA NA	1.05 % 1.00 NA 1.05 NA NA	10.50 % 13.00 NA 11.00 NA NA	11.03 % 13.00 NA 11.55 NA NA	\$2.00 1,20 NA 2.00 NA NA	\$0.96 0.65 NA 1.19 NA NA	52.0 % 45.8 NA 41.0 NA NA	5.7 % 6.0 NA 4.7 NA NA
Average														5,5 %
Proxy Group of Three Value Line (Standard Edition) Water Companie's American States Water Co. Aqua America, Inc. Celifornia Water Services Group Average	49.00 % 49.60 47.00	\$442.30 1,365.70 520.30	\$212.30 659.97 244.54	48.00 % 49.60 47.00	\$700.00 1,380.00 840.00	\$336.00 670.68 394.80	9.62 % 0.36 10.05	1.05 % 1.00 1.05	10.50 % 13.00 11.00	11.03 % 13.00 11.55	\$2.00 1.20 2.00	\$0.96 0.65 1.18	52.0 % 45.9 41.0	5.7 % 6.0 4.7 5.5 %

#### NA = Not Available

Notes: (1) From pages 8 through 12 of this Schedule.
(2) Column 1 \* column 2.
(3) Column 4 \* column 5.
(4) Five year compound growth rate in common equity from 2003 to 2007-2009 or ((((column 6 / column 3) ^ (1/5)) - 1)).
(5) 2 \* ((1 + column 7) / (2 + column 7)).
(6) Column 8 \* column 8.
(7) 1 - (column 12 / Foolumn 11).
(8) Column 10 \* column 13.

Source of Information: Value Line Investment Survey, January 29, 2005, Standard Edition and Small- and Mid-Cap Edition

AME	R S	TAT	FSI	NAT	ER N	VSF-AV	R PR	CENT	25.58	P/E RATIO	18.9	(Trailin Media	g: 27.8 n: 16.0	RELATIVE PIE RATIO	1.01	AFD DIA.D	3.5	% <sup>V</sup>	ALUE		
TMELINES		Raised 11/		High:	16.3 13.1	14.7 10.2	14.0 10.5	16.1 12.5	17.1 13.5	19.5 14.1	26.5 14.8	25.3 16.7	26.4 19.0	29.0 20.3	29.0 21.6	26.8 20.8				Price 2008	Range  2009
AFETY		New 2/4/00	1	LEGEN	IDS		7														-64
ECHNICA	al 2	Raised 12/	24/04	div.	5 x Divider ided by Int lative Price	erest Plate Strength								3-for-2							±48 40
TA .70		Market) OJECTIO	NS	2-for-1 sp 3-for-2 sp	it 10/93 It 6/02				11/11/11/11					1	-14						32
2007⊣ Pri		Ang	n'i Total Return	Options: 1 Shaded	area indica	ites recessi	n n				11,11	1111,1,1	التثلثينيا	pillipite	rill line	121-1-1-1-1				_	-20
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sider I	Decisi	ons		121111111111111111111111111111111111111		1101-11.1	<del>,րկալ</del>	rller-11												l	
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	onai () 192884	Decision 202004	302004	Percen	: : 6-				•,,,,•		*	*****						1 yr.	7.9 23.2	17.2 43.9	F
Buy Sell	47 33	45 35	52 25	shares traded	4 - 2 -	III a last	dilin	Mil.hh										3 yr. 5 yr.	28.7	76.6	-
988 1	5623 1989	5584 1990	5938 1 <b>991</b>	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005		E LINE PU es per sh		07-09 15.8
8.58	9.12	9.5B	9.15	10.10	9.27	10.43	11.03	11.37 1.75	11.44 1.85	11.02 2.04	12.91 2.26	12.17 2.20	13.06 2.53	13.78	13.98	13.75 2.50	14.80 2.90	"Cash F	low" per	sh	3.4
1.13	1.44 .92	1 49	1.78 1.19	1.81	1.67	1.68	1.75 1.03	1.13	1.04	1.08	119	1.28	1.35	1.34	.72	1.16	1.45 .90		s per sh eci'd per		2.0
.67	.69	.72	.73	.77	.79	.80	.81 2.19	.B2 2.40	.83 2.58	3 11	.85 4.30	.86 3.03	3.18	2.68	.88 3.76	.89 4.05	4.15	Cap'l S	pending p	per sh	3.6
2.39 7.07	2.46 7.31	2.53 7.54	2.77 8.39	2.31 8.85	1.90 9.95	2.43 10.07	10.29	11.01	11.24	11.48	11.82	1274	13.22	14.05	13.97	14.65	15.35 17.25		alue pers		17.4
9.35	9.39	9.43	9.91	9.96	11.71	11.77	11.77 11.6	13.33 12.6	13.44	13.44	13.44	15.12	15.12 16.7	15.18 18.3	15.21 31.9	16.75 21.0	11.23		n'i P/E R:		13
14.2 1.18	9.7 .73	10.2 .76	8.8 .56	10.6 .64	1	1	.78	.79	.84	.81	.97	1.03	.86		1.85	1.09			e P/E Rat		3.8
7.4%	7.7%	7.5%	7.0%	6.3%	5.3%	6.6%	6.7%	5.8%	5.5%	5.0%	4.2%	4.2%	3.9%	3.6%	3.5%	3.7%	255	+	n'i Div'd ies (\$mill		3
APITAL	STRU	CTURE a	as of 9/3	0/04 Vrs \$60 (	0 mill	1227	129.8 12.2	151.5 13.5	153.8 14.1	148.1	173.4 16.1	184.0 18.0	197.5 20.4	1	11.9	19.5	25.0	Net Pro	fit (\$mll)	<u> </u>	38
T Debt	\$229.3	mill. i	LT Intere	st \$16.0	mil	43.9%	41.9%	43.3%	41.1%	40.9%	46.0%	45.7%	43.0%	38.9%	43.5%	40.0% Nil	40.0% Ni		Tax Rate: % to Ne		40.0
Total inte	erest o	overage: 2	2.ux)			43.5%	46.6%	41.9%	43.0%	43.6%	51.0%	47.5%	54.9%	52.0%	52.0%	51.0%	51.0%	Long-T	erm Debi	Ratio	52.0
_eases, Pension	Uncap	italized:   s-12/03 \$	None 46.7 mill			55.5%	52.5%	57.3%	56.3%	55.7%	48.4%	51.9%	44.7%	48.0%		49.0%	49.0%		on Equity apital (\$r		48.0
Oblig. \$5 Pfd Stoc	58.9 mi	Ħ.	Pfd Div'			213.5 314.9	230.6 335.0	256.0 357.8	1 .	277.1 414.8	328.2 449.6	371.1 509.1	447.6 539.8			650			ent (\$mill)		8
						71%	7.2%	6.9%	6.9%	7.0%	6.6%	6.4%	6.1%	6.5%		6.0%	6.5% 9.5%		on Total on Shr. I		7.0 10.5
as of 11/	19/04	k 16,689,4		4 0 1		9.4% 9.5%	9.9%	9.0%	3	9.4%	10.0%	9.2%		,		9.0%	9.5%		on Com		10.5
MARKE CURRE		\$425 mi	2002	2003	9/30/04	_	2.1%	2.4%	1.8%	2.1%	2.9%	3.0%	3.6%	3.3%		1			ed to Cor ds to Ne		5.5
(\$Mil. Cash As	L)		18.4	12.8	6.6	84%	79%		1		72%	68%	65%		Bear Lal						
Receiva Inventor	ables	g Cst)	10.8	11.8 1.4	14.5 1.5	Comp	any The	nuch its	States V principa	ıl subsid	iarv. So	ıthern C	California	Chapa	nral City 520 em	Water o	f Arizon	a (10/00	); 11,400	custon	ners. H
Other Current		_	21.7 51.8	$\frac{32.4}{58.4}$	24.9 47.5	Water	Compa	my, it s	supplies s include	water to the grea	75 col ster metr	nmunitie opolitan	s in 30 areas of	anout stock	IAINA Pro	w/ Cha	irman: 11	ovd Ros	s. Presid	ent & C	EO: HC
Accts P	avable		11.6 48.3	18.8 56.8	19.0 28.8	! I I no I	nnolae	and Ora	nne Cour	nties. Th	e compa	ny also	provides	Wicks	Incorpo , CA 917	rated: Ca	: Add:	630 Ea:	st Foothi	ii Boule	vard, S
Other Current		-	19.6 79.5	<u>20.3</u> 95.90	<u>26.8</u> 74.6				o approxi ates					We	look	for	Amer	ican	to g	row	earı
Fix. Cho		·	285%	255%	200%	Lon	tend	wit	h inc	reasi	ng i	nfras	truc-	ing	s by CPU	25%	in 20	05. E	arlie	r this	: yea
ANNUA of change		h) 10 Yr:	s. 5	Yrs. t	'd '01-'0: o '07-'09	tur was	e cos	ts go	ing fo	)rwar urcha:	d. The	e com ater	ipany from	cres	sees f	or Re	epion	II a	nd II	I cus	stomo
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Earning Dividen	gs ids		5%	1.5% 1.0%	9.5% 1.5%	wel	ls we lity	re tal and	cen ou maint	enanc	ervice e re	e ior Asons.	water We	vide	addi e	itional	lann	ual r	evenu	ies to	talir
Book V		4. ARTERLY F		4.0% S.(\$ mill )	4.0% Ful	⊢ rem	nin	conce	rned	about	; the	se ci	rcum-	me	ese u	of \$5 ntime	millio Ny sl	n. hares	hole	d mi	nim
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endar 2001	Mar.3	1 Jun. 3				Sti	ll. re	gula	tory clos	relief	like 2004	ly h	elped trons	e also	ıld no limi	t AW	R's at	oility	to pa	rticip	ate
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			Evoludos	nonrec	urrino (f	B) Divide	nds histo	rically pa	aid in ear	ly-March	(C) In	millions,	adjusted	for splits					ncial Stre	ength	
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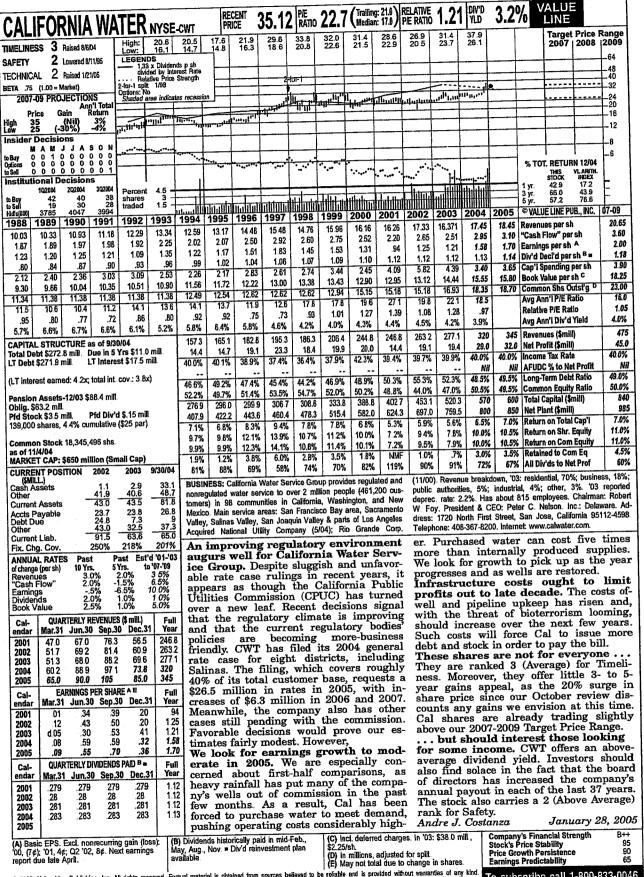
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.98	.76	.69				.80	.98				3.3%	2.5%	2.5%	2.5%	2.3%	1				2.4
				3.5%	108.6	117.0	122.5	136.2	151.0	257.3	275.5	1		367.2	440		•			6
bt \$961	.5 mill	Due in 5	Yrs \$211	.9 mill. mill	15.6	19.0	19.8	23.2	28.8	45.0 38.4%										40.0
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ck None	)	C	Oblig. \$15	50 1 mtl.	303.1	338.0	401.7	427.2	496.6	7827	901.1	990.4	1076.2	1355.7	1325	1315	Total C	apital (\$n		13 23
		277 shar	es		385.7	436.9	502.9	534.5	609.8										Cap'l	9.5
	,				10.4%	11.7%	10.7%	11.9%	12.3%	12.2%	11.7%	12.3%	12.7%	10.2%	11.5%	I				13.
				000104	10.3%	11.7%	11.2%										Retains	d to Con	n Eq	6.
L)	SITION				81%	71%	75%	70%	64%	65%	60%	59%	59%				,			5.
ables	Cet)	57.7	62.3 5.8	71.0	BUSH	NESS: A	qua Ame	rica, Inc.	is the h	olding co	ompany f	ior water ion resi-	comm	ercial 17	'%: indus	strial & c	other, 24'	%. Office	ers and	directi
	_	2.7	<u>5.1</u>	6.1	donte	in Penr	evivania.	Ohio. N	ew Jers	ev. Illino	ois, Main	e, North	own 1	4% of th	e commo	n stock	(4/04 Pro	xy). Cha	irman 6.	Chief
ayable		31.1	32.3	15.2	three	of four r	non-wate	r business	es in '9	it: telem	arketing	group in	Addre	ss: 762	West Lai	ncaster /	Avenue, 1	Bryn Ma	wr, Pen	insylva
		46.0	63.9	81.6	93; a															
-		347%	344%	331%	ear	nings	: gair	of 12	2% in	2005	, follo	owing	mill	ion n	er ar	num.	Utili	ity co	mmi	SSIOT
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Jes	4. 8.	0%	75% 05%	7.0%	sult	of	acoui	sitions	. Не	avier-	than-	usual	pen	ses. Ir	ı Agu	a's cas	se, rat	e inci	eases	s hav
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					⊢i Aαı	ua Au	meric	a con	nplet	ea z	y acc	luisi-	Thi	s t	ıntim : rati	ely o is :				ce-to ve i
	Jun.3	Sep.3	0 Dec.3	1 Year	∐ man	rily fo	ınded	with	long-	and	short	-term	tra	dition	al ne	orm.	Conse	quent	tly, d	espit
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80.5	83.4	102.1	101.2	367.	vea	r-end	close	of th	ie ra	tio oi	long	-term	200	9 is	unatt	ractiv	e. Th	e per	centa	age
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	SS 4 3 3 AL 2 (1.00 = -0.09 PR(-0.00 = -0.00 PR(-0.00	SS 4 Lowered B  AL 2 Raised 1/7. (1.00 = Market)	SS 4 Lowerd 84/04  3 Lowerd 84/03  AL 2 Raised 17/05  (1.00 = Market)  19 PROJECTIONS  (1.00 = Market)  10 9 PROJECTIONS  (1.00 = Market)  10 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SS 4 Lowerd 84/04  3 Lowerd 81/03  AL 2 Raised 1/7/05  (1.00 = Market)	3 Lowerd 8/103 AL 2 Reised 1/105 (1.00 = Market)	SS   4   Lowered 84/04   High:   5.3   5.0     3   Lowered 81/03   LEGENDS   Lowered 81/05     Al   2   Raised 17/05   Cit.   Committee   Cit.   Ci	A ANEKICA NYSE-WTR	SS	SS   4   Lowered 84 104   S   Cov.   A   A   A   A   A   A   A   A   A	SS   4	SS 4 Longerd SRIAD  3 Lowerd SRIAD  3 Lowerd SRIAD  4 Low. Hight: 5.3 5.0 5.5 7.6 11.4 16.2 15.4 15.4 15.4 15.4 15.4 15.4 15.4 15.4	\$\$ 4 Loseed 94/04 \$\$ 1 Loseed 94/04 \$\$ 1 Loseed 94/04 \$\$ 1 Loseed 94/04 \$\$ 2 Paised 17/05 \$\$ (1.00 - Natives) \$\$ 2 Paised 17/05 \$\$ (2.00 - Natives) \$\$ 3 Paised 17/05 \$\$ (2.00 - Natives) \$\$	\$\$\$ 4 Lowered WINDS   High:   5.3   5.0   5.5   7.6   11.6   15.4   15.4   15.4   15.4   15.4   15.5	\$\$ 4 Lossnerd 89004 \$\$ 1.000-114405 \$\$ 1.000-1	3 4 Losend RNDA  3 Losend RNDA  1 Called TIDS  1 Lose - Markel RNDA  1 Called TIDS  1 Con - Markel  3 PROJECTIONS  3 Individed by Insured Repairs  1 Con - Markel  3 PROJECTIONS  3 Individed RNDA  1 Called Return  1 Series - Control Repairs  1 Con - Markel  1 Con - Marke	\$\$\frac{4}{3}\$\$ Lisserd RIND\$ \$\$\frac{1}{3}\$\$ Lisserd RIND\$ \$\$\fra	### A MEINTUCH WYSE-VIR   1902   1903   1904   1905	A AMERICA NYSE-WTR    PROJECT 1985   24.25   25.01   2	A AMERICA NYSE-WTR    Control   Cont	A AMERICA NYSE-WTR    Proceedings   Proceedi

diluted thereafter. Excl. nonrec. gains (losses).

90, (38¢); '91, (34¢); '92, (38¢); '93, (11¢); '00, (and support of the sup

Earnings Predictability

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THE PURE COUNC INC		1997	1998	1999	2000	2001	2002	2003	2004	2005/2000
VALUE LINE PUBLISHING, INC. ALES PER SH	18 4.52	4 72	4.39	5.35	5.39	5.87 1.18	5.98 1.20	6.12 1.15	-	
CASH FLOW" PER SH	.94	1.02	1.02	1.19 .76	<i>ji</i> 99 .51	.66	5-1 <b>73</b>	.61	.69 <sup>A,B</sup>	.80°/NA
ARNINGS PER SH NV'DS DECL'D PER SH	.60 .55	.57	.58	.60	.61 1.32	.62 1.25	.63	65 1.87	-	11 Can 1 15
AP'L SPENDING PER SH	.73 5.85	1.20 6.00	2.68 6.80	2.33 6.95	6.98	7.11	7.39	7.60 10.48	-	334 BASS
OOK VALUE PER SH COMMON SHS OUTST'G (MILL)	8.41	8.54	9.82	10.00	10.11	10.17	10.36 23.5	30.0	25.8	22.3/NA
VG ANN'L P/E RATIO	14.4	.13.4	15.2 .79	17.6	1.87	1.26	1.28	1.71	-	الله الله الله الله الله الله الله الله
RELATIVE P/E RATIO AVG ANN'L DIV'D YIELD	- 6.4%	6.3%	5.4%	4.4% 53.5	4.2% 54.5	.59.6	61.9	64.1	-	Bold figures
SALES (SMILL)	38.0 36.0%	40.3 37.2%	43.1 37.0%	33.9%	32.2%	47.2%	- 47.1% 5.0	44.0%	+=-	earnings 30
OPERATING MARGIN DEPRECIATION (\$MILL)	2.9	3.1	3.8	4.3 7.9	4.9 5.3	5.3 7.0	7.8	> 6.6	<u> </u>	estimates
NET PROFIT (\$MILL)	5.2 32.8%	.5.9 .34.9%	6.5 31.5%	28.8%	33.1%	34.8%	33.3% 12.5%	32.8% 10.3%	1 =	and, using the
INCOME TAX RATE NET PROFIT MARGIN	13.6%	14.5%	15.1% 14.6	14.7%	d2.7	:11.7% ∷d.9	d9.3	d13.3		P/E ratios
WORKING CAP'L (\$MILL)	2.0 53.0	d2.9 52.9	78.0	82.3	81.1	88:1	. 87.5 . 80.6	97.4 83.7	- i	1 H H H
LONG-TERM DEBT (\$MILL) SHR. EQUITY (\$MILL)	51.9	56.2	71.7	74.6	74.7	76.4 5.6%	6.0%	. = 5.0%	1 .	
RETURN ON TOTAL CAP'L RETURN ON SHR. EQUITY	6 4% 10.0%	6.8%	9.1%		7.1%	9.1%	9.6%	. 3 ∂7.9% NMF		<b>4</b>
THE PLET TO COM EQ	B%	1.7%	1.8%	78%	NMF 121%	0.00	D70/	106%	37	
ALL DIV'DS TO NET PROF  ANo. of enalysis changing earn. est. i	in last 15 days: 0	up, D down, con	sensus 5-year e	earnings growth (	6.0% per year. <sup>B</sup> E	Based upon one	analyst's estim	ate: <sup>C</sup> Based upo	on one analysts	espinare i
ANNUAL RATES		ASSETS (\$	-	2002 2003	3 🕫 9/30/04 . 🛭					
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FUDC % TO NET PROFIT ONG-TERM DEBT RATIO	-	-	<del>                                     </del>	8	50.2%	- 47.7%	46.7%	43.4% 56.6%		and, using the
OMMON EQUITY RATIO		19 · 5 · 14-	· · ·	- <u>-</u>	49.8%	52.3% 68.6	53.3% 69.9	69.0	-   N	P/E ratios.
OTAL CAPITAL (\$MILL)	Ţ -		3.5-	-	65.2 97.0	102.3	106.7	116.5	:187	<b>-</b>
ET PLANT (\$MILL) ETURN ON TOTAL CAP'L	1 k		13,000	1	7.9%	7.9%	10.29/	8.5% 11.4%	- 3	1642 Van 194
ETURN ON SHR. EQUITY		i ≜i <del>±</del> .			11.6%, 11.6%	11.2% 11.2%	10.2%	11.4%	9aC	1000年
ETURN ON COM EQUITY				10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2.5%	2.5%	-1.3%	2.6%	- 5-14:13	E 12 % 896 TSA
RETAINED TO COM EQ				i	78%	78%	88%	77%	2 analysts' estin	
LL DIV'DS TO NET PROF	n last 15 days: I	0 up, 0 down, co	nsensus 5-year	earnings growth	7.0% per year.	Daseu upon <u>e</u> an	INF	HSTRY Y	ater Utility	
ANNUAL RATES		ASSETS (		2002 200	3 9/30/04 0 a0 :	. 3.00				i
of change (per share) 5 Yrs	s: 1 Yr. 6.0%			2.8 3.	2 32	BUSINES	SS: York	Water Co	mpany eng	ages in the im-
Revenues	13.0%	Inventory			6 8 3 <u>.7</u>	1 7 t	Jammerilizar	io The Co	ากกลกข กละ	of water in York two reservoirs,
"Cash Flow"	16.5%		note:	3.7 4.		T -1 337531	iama and I	ale Redm	an:wnich u	Settlet Horr up to
"Cash Flow" Earnings Dividends		Current As	25612					of water It	supplies W	ater for domesuc,
"Cash Flow" Earnings Dividends Book Value	5.0% 4.09	Current As				0.75 1:11:	on gallons	Of Whiteh is		
"Cash Flow" Earnings Dividends Book Value Fiscal QUARTERLY SALES	5.0% 4.0% (\$mill.) F	Current As  Property, & Equi	Plant o, at cost	127.7 139		2.75 billio	ial indust	ตั้งได้เกิดได้เกิด	re: protecut	II DINDOZEZ THE
"Cash Flow" Earnings Dividends Book Value  Piscal QUARTERLY SALES 1Q 2Q 3Q	5.0% 4.0% (\$mill.) F 4Q Ye	Current As  Cull Property,  & Equip  Accum De	Plant o, at cost preciation	21.0 22 106.7 116	.6 .5 136.4	2.75 billio commerci company	ial, industrial serves ap	rial, and hi proximatel k County	re protection y 149,000 p Pennsylva	people in 31 mu- mia. It supplies
"Cash Flow" Earnings Dividends Book Value  Fiscal QUARTERLY SALES Year 1Q 2G 3Q 2/31/02 4.7 49 53 2/31/03 4.8 5.0 5.8	5.0% (\$milL) F 4Q Yo 5.3 2	Current As  Current As  Property, & Equip Accum De Net Prope O 9 Other	Plant o, at cost preciation rty	21.0 22 106.7 116 8.0 6	6 136.4 .9 7.7	2.75 billio commerci company nicipalitie	ial, indust serves ap es in You	rial, and in proximatel k County,	re protection 149,000 p Pennsylvation 1	people in 31 mu- mia. It supplies system to the city
"Cash Flow" Earnings Dividends Book Value  Fiscal QUARTERLY SALES Year 1Q 2G 3Q 2/31/02 4.7 4.9 5.3 2/31/04 5.4 5.5 5.6	5.0% 4.0% (\$mill.) F 4Q Y0 5.3 2	Current As  Current As  Property, & Equit Accum De  Net Prope Other  Total Assor	Plant p, at cost preciation rty	21.0 22 106.7 116 8.0 6	.6 .5 136.4	2.75 billio commerci company nicipalitie through t	ial, indust serves ap es in Yor he compar	rial, and in proximatel k. County, y's own d	re protection 149,000 permission stribution so York: Wes	ne purposes. Income purposes and purposes in 31 mu- inia. It supplies system to the city it York; Manches-
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"Cash Flow" Earnings Dividends Book Value  Fiscal QUARTERLY SALES Year 1Q 2G 3Q 2/31/02 4.7 4.9 5.3 2/31/04 5.4 5.5 5.6	5.0% 4.0% (\$mill.) F 4Q Y 4.7 11 5.3 2	Current As- Property, & Equil ear 9 6 Net Prope Other Total Assi  LIABILITI Accis Pay (ear Debt Due	Plant p, at cost preciation my  ES (\$mill.)	21.0 22 106.7 116 8.0 6 118.4 127	.5 . 136.4 .97.7 .5 148.8	2.75 billio commerci company nicipalitie through t of York; ter; Mour Yorkana;	serves ap es in You he compar the boroug ht Wolf; N Seven V	rial, and proximatel k. County, by sown do not his of Northew Salem; alleys; East Railroa	y 149,000 p Pennsylva istribution s York; Wes Hallam; Jac it Prospect	people in 31 mu- people
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"Cash Flow" Earnings Dividends Book Value 10 2Q 3Q 2/31/02 4.7 4.9 5.3 2/31/04 5.4 5.5 5.6 2/31/05 1Q 2Q 3Q 2/31/05 1Q 2/31/05 1Q 2Q 3Q 2/31/06 1Q 2Q 3Q 2/31/07 1Q 2Q 3Q 12/31/01 13 14 23 12/31/02 14 15 18	5.0% (\$mill.) F 4Q YY 4.7 11 5.3 2 SHARE 4Q Y	Current As- ear Net Property, lear Accum De Net Property Other Total Assistant Labellari Labellari Lear Debt Due .65 Other .60 Current L	Plant p, at cost preciation riv ats ES (\$mill.)	21.0 22 106.7 116 8.0 6 118.4 127 7 1 2.8 9 2.0 2	.5 . 136.4 .97.7 .5 . 148.8 .7 . 3.2 .9 . 11.8 .2.4 . 2.0	2.75 billio commerci company nicipalitie through t of York; ter; Mour Yorkana; Rock; No ships of	serves ap es in You he compar the boroug nt Wolf; N Seven V Warredo Manchest	rial, and in proximatel k. County, iy's own d his of Nortl ew Salem; alleys; Eas m, Railroa er, East M	re protecticy 149,000 p Pennsylva istribution s 1 York; Wes Hallam; Jac ist Prospect d; and port anchester, North Hor	people in 31 mu- people in 31 mu-people in 31 mu- people in 31 mu-people
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"Cash Flow" Earnings Dividends Book Value	5.0% 4.07 (\$mill.) F 4Q Y 4.7 11 5.3 2 2 HARE 4Q Y 15 13 18 18	Current As ear 9 6 Net Prope 0.9 Other Total Ass ear LIABILITI Accis Pay Debt Due Coher 70 LONG-TI LONG-TI LONG-TI Accis Pay Debt Due Coher 3 Current L 3 Coher 3 Current L 5 Current L 5 Coher 5 Current L 5	Plant p, at cost preciation riv ats ES (\$mill.)	21.0 22 106.7 116 8.0 6 118.4 127 2.8 9 2.0 2 5.5 14	.5 . 136.4 .9 . 7.7 .5 . 148.8 .7 . 3.2 .9 . 11.8 .4 . 2.0	2.75 billic commerci company nicipalitie through t of York; ter; Mour Yorkana; Rock; No ships of North C Springett York, He	ial, industrial indust	rial, and in proximately k. County, and in yes own d his of Northew Salem; alleys; East M. Railroaer, East M. Prewsbury, ring Gard door, Lowes C.	y 149,000 p Pennsylvi istribution s n York; Wes Hallam; Jac ist Prospect d; and port anchester, North Hop en, Conew er Windsor, F.O. & P	people in 31 mu- mia. It supplies system to the city t York; Manches- obus; Loganville; Jefferson; Glen ions of the town- West Manchester, ewell, Hopewell, ago, Springfield, Dover, and Jack- resident: William
"Cash Flow" Earnings Dividends Book Value	5.0% 4.07 (\$mill.) F 4Q Y 5.3 2 HARE 4Q Y 15 13 18 16 NDS PAID	Current As  Property, A Equit Accum De 9 6 Other Total Ass  LABILITI Accis Pay Cear 65 Current L 70  LONG-TI as of	Plant p, at cost preciation rry  ests ES (\$mill.) rable iab	21.0 22 106.7 116 8.0 6 118.4 127 .7 1 2.8 9 2.0 2 5.5 14	.5 . 136.4 .9 . 7.7 .5 . 148.8 .7 . 3.2 .9 . 11.8 .4 . 2.0	2.75 billic commerci company nicipalitie through t of York; 1 ter; Mour Yorkana; Rock; No ships of North Co Springett York, He son. Ha Morris, I	ial, industive serves appeared in You he compared the borough the borough the work of the work freedo Manchest odorus, Sisbury, Spellam, Wins 92 empnc.: PA A	rial, and in proximatel. k. County, ny's own d his of Nortlew Salem; alleys; East m, Railroa er, East M nrewsbury, ring Gard ddsor, Low bloyees. C ddress: 130	y 149,000 p 149,000 p Pennsylva istribution s York; Wes Hallam; Jac if Prospect d; and port anchester, North Hop en, Conew er Windsor, E.O. & P East Mark	per purposes in a purpose in 31 mu- mia. It supplies system to the city of York; Manches- obus; Loganville; Jefferson; Glen ons of the town west Manchester, ewell, Hopewell, ago, Springfield, Dover, and Jack- resident: William et Street; York, PA
"Cash Flow" Earnings Dividends Book Value	5.0% 4.07 (\$mill.) F 4Q Y 5.3 22 HARE 4Q Y 15 13 18 16 NDS PAID 1 14Q Y	Current As  Property, a Equit Accum De 9 6 Net Prope 0 9 Other Total Ass  LABILITI Accis Pay Debt Due Other 65 Current L 70  LONG-TI as of Full Total Debt LT	Plant p, at cost preciation rty ets ES (\$mill.) rable iab ERM DEBT AN 9/30/04 bt \$47.4 mill.	21.0 22 106.7 116 8.0 6 118.4 127 2.8 9 2.0 2 5.5 14	.6 5 1364 997.7 148.8 17 32 99 11.8 24 2.0 17.0	2.75 billic commerci company nicipalitie through t of York; it ter; Mour Yorkana; Rock; No ships of North Cl Springett York, He son. Ha Morris, I 17401.	ial, industrial indust	rial, and proximatel, and proximatel, k. County, k. County, k. County, so and this of Northew Salem; alleys; East Marewsbury, ring Garddsor, Lowelloyees. C. ddress: 130 (717)	y 149,000 p 149,000 p Pennsylva istribution s York; Wes Hallam; Jac if Prospect d; and port anchester, North Hop en, Conew er Windsor, E.O. & P East Mark	people in 31 mu- mia. It supplies system to the city at York; Manches- obus; Loganville; Jefferson; Glen ions of the town- West Manchester, ewell, Hopewell, ago, Springfield, Dover, and Jack- resident: William et Street, York, PA 501. Internet:
"Cash Flow" Earnings Dividends Book Value	5.0% 4.07 (\$mill.) F 4Q Y 5.3 22 34.7 11 5.3 21 31.15 13 18 1.16 NDS PAID 1 4Q 1 3 13 5 .135	Current Associated to the control of	Plant p, at cost; preciation rty  ets ES (\$mill.) rable  RM DEBT AN 9/30/04  bt \$47.4 mill. \$35.6 mill. g Cap. Leases	21.0 22 106.7 116 8.0 6 118.4 127 2.8 9 2.0 2 5.5 14 DEQUITY	.6	2.75 billic commerci company nicipalitie through t of York; it ter; Mour Yorkana; Rock; No ships of North Cl Springett York, He son. Ha Morris, I 17401.	ial, industive serves appeared in You he compared the borough the borough the borough Yeel odorus, Siesbury, Spellam, Winsies 92 empnc.: PA A	rial, and in proximatel, and in proximatel, and in the County, by sown days of Northew Salem; alleys; East M. Railroa er, East M. Prewsbury, Tring Garddsor, Lowelloyees. C. ddress: 130 (717) iter.com.	y 149,000 p y 149,000 p Pennsylva istribution s n York; Wes Hallam; Jac ii Prospect d; and port anchester, North Hop en, Conew er Windsor, E.O. & P ) East Mark 845-36	members in the complete in 31 mu- mia. It supplies system to the city of tyork; Manches- obus; Loganville; Jefferson; Glen ions of the town- west Manchester, well, Hopewell, ago, Springfield, Dover, and Jack- resident: William et Street, York, PA 501. Internet:  AZ
"Cash Flow" Earnings Dividends Book Value	5.0% 4.07 (\$mill.) F 4Q Y 5.3 22 34.7 11 5.3 21 31.15 13 18 1.16 NDS PAID 1 4Q 1 3 13 5 .135	Current As- Wear Property, & Equip Accum Die Ob Other Total Ass  LABILITI Accis Pay Cear Cother Cother Cother Cother LONG-TI as of Year Total Del LONG-TI as of Year Total Del LT Debt Including LABILITI Accis Pay Cear LONG-TI as of Year LONG-TI se of LONG	Plant p, at cost preciation rry  ets ES (\$mill.) rable iab  ERM DEBT AN 9/30/04 bt \$47.4 mill. \$35.6 mill. g Cap. Leases Uncapitalized	21.0 22 106.7 116 8.0 6 118.4 127 7 1 2.8 9 2.0 2 5.5 14 D EQUITY  Du  NA  Annual rentals	.6	2.75 billic commerci company nicipalitie through t of York; it ter; Mour Yorkana; Rock; No ships of North Cl Springett York, He son. Ha Morris, I 17401.	ial, industive serves appeared in You he in You he borought Wolf; N. Seven Vew Freedo Manchest odorus, Slasbury, Spellam, Wins 92 empnc.: PA. A Tel.:	rial, and in proximatel k. County, in y's own d his of Northew Salem; alleys; East M. Railroaer, East M mrewsbury, ring Gard ddsor, Lowed bloyees. C ddress: 130 (717)	y 149,000 p 149,000 p Pennsylva istribution s York; Wes Hallam; Jac if Prospect d; and port anchester, North Hop en, Conew er Windsor, E.O. & P East Mark	be purposes. In the property of the city of the city of the city of the city of the city. Logarville, lefterson; Glen ions of the town-west Manchester, wewell, Hopewell, ago, Springfield, Dover, and Jackresident; William et Street, York, PA. 2.
Earnings Dividends Book Value  Fiscal Year 1Q 2Q 3Q 2/31/02 4.7 4.9 5.3 2/31/04 5.4 5.5 5.6 12/31/05 EARNINGS PER S Year 1Q 2Q 3Q 12/31/01 13 14 28 12/31/01 14 15 .18 12/31/03 12 16 .24 12/31/03 12 16 .24 12/31/04 25 .16 .18 12/31/05 26 .14  Cal Cuarterly Divide endar 1Q 2Q 3Q 2002 13 13 13 13 2004 145 145 .14 2005 156	5.0% 4.07 (\$mill.) F 4Q Y 5.3 22 6HARE 4Q Y 6.15 1.3 1.18 1.16 1.16 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3	Current As- Wear Property, & Equip Accum Die Ob Other Total Ass  LABILITI Accis Pay Cear Cother Cother Cother Cother LONG-TI as of Year Total Del LONG-TI as of Year Total Del LT Debt Including LABILITI Accis Pay Cear LONG-TI as of Year LONG-TI se of LONG	Plant p, at cost preciation rry  ets ES (\$mill.) rable iab  ERM DEBT AN 9/30/04 bt \$47.4 mill. \$35.6 mill. g Cap. Leases Uncapitalized	21.0 22 106.7 116 8.0 6 118.4 127 2.8 9 2.0 2 5.5 14 DEQUITY	.6	2.75 billic commerci company nicipalitie through t of York; letr. Mour Yorkana; Rock; No ships of North C Springett York, He son. Ha Morris. I 17401. http://www.asa.	ial, industive serves appeared in You he borought Wolf, N. Seven Vew Freedo Manchest odorus, Sisbury, Spellam, Wins 92 emplanc. PA. A. Tel.:	rial, and proximatel k. County, y's own do his of Northew Salem; alleys; East m, Railroa er, East M rewsbury, ring Gard door, Loweloyees. C ddress: 130 (717) iter.com.	y 149,000 p 149,000 p Pennisylon istribution York; Wes Hallam; Jac Prospect d; and port anchester, North Hop en, Conew er Windsor, E.O. & P East Märk 845-36	be purposes. In the property of the city of the city of the city of the city of the city. Logarville, lefterson, Glen ions of the town-west Manchester, sewell, Hopewell, ago, Springfield, Dover, and Jackresident: William et Street, York, PA. 201.
"Cash Flow" Earnings Dividends Book Value	5.0% 4.07 (\$mill.) F 4Q YY 5.3 22 34.7 11 5.3 21 31.15 13 18 1.16 NDS PAID 1 4Q 1 3 13 5 135 5 145	Current Associated to the control of	Plant  o, at cost preciation riv  ets  ES (\$mill.)  able  iab  ERM DEBT AN 9/30/04  bt \$47.4 mill. \$35.6 mill. g Cap. Leases  Uncapitalized  Liability None	21.0 22 106.7 116 8.0 6 118.4 127 2.8 9 2.0 2 5.5 14 D EQUITY  Du  NA  Annual rentals in '03 vs \$1.7 m	.6	2.75 billic commerci company nicipalitie through t of York; letr. Mour Yorkana; Rock; No ships of North C Springett York, He son. Ha Morris. I 17401. http://www.asa.	ial, industive serves appeared in You he borought Wolf, N. Seven Vew Freedo Manchest odorus, Sisbury, Spellam, Wins 92 emplanc. PA. A. Tel.:	rial, and proximatel k. County, y's own do his of Northew Salem; alleys; East m, Railroa er, East M rewsbury, ring Gard door, Loweloyees. C ddress: 130 (717) iter.com.	y 149,000 p 149,000 p Pennisylon istribution York; Wes Hallam; Jac Prospect d; and port anchester, North Hop en, Conew er Windsor, E.O. & P East Märk 845-36	people in 31 mu- mia. It supplies system to the city at York; Manches- obus; Loganville; Jefferson; Glen ions of the town- West Manchester, weell, Hopewell, ago, Springfield, Dover, and Jack- resident: William et Street, York, PA 501. Internet: A.Z.
"Cash Flow" Earnings Dividends Book Value	5.0% 4.07 (\$mill.) F 4Q Y 5.3 22 6HARE 4Q Y 6.15 1.3 1.18 1.16 1.16 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3	Current Assertion of the control of	Plant p, at cost preciation rry  ets ES (\$mill.) rable  iab  ERM DEBT AN 9/30/04 bt \$47.4 mill. \$35.6 mill. g Cap. Leases Uncapitalized Liability None k None	21.0 22 106.7 116 8.0 6 118.4 127 7 1 2.8 9 2.0 2 5.5 14 D EQUITY  Du  NA  Annual rentals in '03 vs \$1.7 in	6 1364 5 1364 9 . 7.7 5 148.8 17 32 99 11.8 24 2.0 40 17.0 e in 5 Yrs. NA (43% of Cap'l) NA mill. in '02 Div'd Pald Nohe	2.75 billic commerci company nicipalitie through t of York; letr. Mour Yorkana; Rock; No ships of North C Springett York, He son. Ha Morris. I 17401. http://www.asa.	ial, industive serves appeared in You he borought Wolf, N. Seven Vew Freedo Manchest odorus, Sisbury, Spellam, Wins 92 emplanc. PA. A. Tel.:	rial, and proximately ky. County, ky. County, ky. County, ky. County, so will do not be salem; alleys; East Marewsbury, ring Garddosor, Lowelloyees. Cddress: 130 (717) https://doi.org/10.1000/100000000000000000000000000000	y 149,000 py 149,000 py 149,000 pennsylvistribution so York; Wes Hallam; Jackit Prospect d; and port anchester, North Hopen, Conew pen, Conew E.O. & P. East Märk 845-36	members in the complete in 31 munical it supplies system to the city it York; Manchesobus; Loganville; Jefferson; Glen ions of the town-West Manchester, weell, Hopewell, ago, Springfield, Dover, and Jackresident: William et Street, York, PA 501. Internet:  AZ  sciation as of 12/31/2004 3 Yrs. 5 Yrs.
"Cash Flow" Earnings Dividends Book Value	5.0% 4.07 (\$mill.) F 4Q Y 5.3 22 24 31 3 13 5 135 5 145  CISIONS CIVIL 1 5 4 4 5 5 1 4 5 5 1 4 5 5 1 4 5 5 1 4 5 5 1 4 5 5 1 4 5 5 1 4 5 5 1 6 6 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Current Associated by the control of	Plant D, at cost preciation rhy  ests ES (\$mill.) rable iab  ERM DEBT AN 9/30/04 bt \$47.4 mill. \$35.6 mill. g Cap. Leases Uncapitalized Liability None k None a Stock 6,873,82	21.0 22 106.7 116 8.0 6 118.4 127 7 1 2.8 5 2.0 2 5.5 14 D EQUITY  Du  NA  Annual rentals in '03 vs. \$1.7 n  Pfd I	.5 136.4 .9 .7.7 .5 148.8 .7 3.2 .9 11.8 .2.0 .40 .17.0 e in 5 Yrs. NA (43% of Cap'l) NA 	2.75 billic commerci company nicipalitie through the of York; ter; Mour Yorkana; Rock; No ships of North Commerci York, He son. Ha Morris. I 17401. http://www.asaa.	ial, industive serves appeared in You he borought Wolf, N. Seven Vew Freedo Manchest odorus, Sisbury, Spellam, Wins 3, 92 employers PA. A. Tel.:  SHAREHO  6 Marchest A. Tel.:	rial, and fingrownial,	y 149,000 p y 149,000 p Pennisylvi istribution s n York; Wes Hallam; Jac it Prospect d; and port anchester, North Hop en, Conew er Windsor, E.O. & P East Märk 845-36  28, 2005  TURN Vr.	members in the complete in 31 munical it supplies system to the city it York; Manchesobus; Loganville; Jefferson; Glen ions of the town-West Manchester, weell, Hopewell, ago, Springfield, Dover, and Jackresident: William et Street, York, PA ion Internet:  AZ

### Carolina Water Service, Inc. Indicated Common Equity Cost Rate Through Use of a Risk Premium Model Using an Adjusted Total Market Approach

Line No.		Proxy Group of Six AUS Utility Reports Water	Proxy Group of Three Value Line (Standard Edition) Water Companies
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	6.2 %	6.2 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A Rated Public Utility Bonds	0.4 (2)	0.4 (2)
3.	Adjusted Prospective Yield on A Rated Public Utility Bonds	6.6 %	6.6 %
4.	Adjustment to Reflect Bond Rating Difference of Proxy Group	0.0 (4)	0.0 (4)
5.	Adjusted Prospective Bond Yield	6.6	6.6
6.	Equity Risk Premium (5)	4.0	4.2
7.	Risk Premium Derived Common Equity Cost Rate	10.6 %	<u>10.8</u> %

- Notes: (1) Derived in Note (3) on page 6 of this Schedule.
  - (2) The average yield spread of A rated public utility bonds over Aaa rated corporate bonds of 0.43%, rounded to 0.4% from page 4 of this Schedule.
  - (3) Assumed.
  - (4) No adjustment necessary as the average Moody's bond rating of the proxy group is A2.
  - (5) From page 5 of this Schedule.

### Carolina Water Service, Inc. Comparison of Bond Ratings and Business Profile for the Proxy Group of Six AUS Utility Reports Water Companies and the Proxy Group of Three Value Line (Standard Edition) Water Companies

	March 2005 Moody's Bond Rating			Standard & Poor's Business Position / Profile (2)			
Proxy Group of Six AUS Utility Reports Water Companies	Bond Rating	Numerical <u>Weighting (1)</u>	Bond <u>Rating</u>	Numerical Weighting (1)	Credit <u>Rating</u>	Numerical Weighting (1)	
American States Water Co (3) Aqua America, Inc. (4) Artesian Resources, Inc California Water Service Group (5) Middlesex Water Company York Water Company Average	A2 NR NR A2 NR NR NR	6   6   6.0	A- AA- NR NR A+ NR	7 4  5  5.3	A- A+ NR A+ A A-	7 5 5 6 5 5.6	3 2  3 3 2 2
Proxy Group of Three Value Line (Standard Edition) Water American States Water Co. (3) Aqua America, Inc. (4) California Water Service Group (5) Average	A2 NR A2 A2	6  6 6.0	A- AA- NR <u>A+/A</u>	7 4 	A- A+ A+	7 5 5 5.7	3 0 2 0 3 0 2 7

Notes: (1)

From page 3 of this Schedule From Standard & Poor's U.S. Utilities and Power Ranking List, March 24, 2005. Ratings and business profile are those of Southern California Water Company

Ratings and business profile are those of Aqua Pennsylvania, Inc Ratings and business profile are those of California Water Service Company.

Source of Information:

Moody's Investors Service Standard & Poor's Global Utilities Rating Service

# Carolina Water Service, Inc. Numerical Assignment for Moody's and Standard & Poor's Bond Ratings

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-

### Moody's Comparison of Interest Rate Trends for the Three Months Ending February 2005 (1)

					Spread - Co	orporate v. Public l	Jtility Bonds	Spread - Publ	ic Utility Bonds
Years	Corporate Bonds Aaa Rated	Aa Rated	Public Utility Bond A Rated	s Baa Rated	Aa (Pub. Util.) over Aaa (Corp.)	A (Pub. Util.) over Aaa (Corp.)	Baa (Pub. Util.) over Aaa (Corp.)	A over Aa	Baa over A
December-04 January-05 February-05	5.47 % 5.36 5.20	5.78 % 5.68 5.55	5.92 % 5.78 5.61	6.10 % 5.95 5.76					
Average of Last 3 Months	<u>5.34</u> %	<u>5.67</u> %	<u>5.77</u> %	<u>5.94</u> %	0.33 %	0.43_%	0.60_%	0.10 %	0.17 %

Notes: (1) All yields are distributed yields.

Source of Information: Mergent Bond Record , March 2005, Vol. 72, No. 3

Exhibit No. Schedule PMA-10 Page 5 of 9

### Carolina Water Service, Inc. Judgment of Equity Risk Premium for the Proxy Group of Six AUS Utility Reports Water Companies and the Proxy Group of Three Value Line (Standard Edition) Water Companies

Line No.		Proxy Group of Six AUS Utility Reports Water Companies	Proxy Group of Three Value Line (Standard Edition) Water Companies
110.			
1.	Calculated equity risk premium based on the total market using the beta approach (1)	3.8 %	4.1 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	4.2	4.2
	,		
3.	Average equity risk premium	4.0 %	4.2 %

- Notes: (1) From page 6 of this Schedule
  - (2) From page 8 of this Schedule

### Carolina Water Service, Inc. Derivation of Equity Risk Premium Based on the Total Market Approach

### Using the Beta for the Proxy Group of Six AUS Utility Reports Water Companies and the Proxy Group of Three Value Line (Standard Edition) Water Companies

		the Freezy Croup of Times I		
Line <u>No.</u>			Proxy Group of Six AUS Utility Reports Water	Proxy Group of Three Value Line (Standard Edition) Water Companies
1.		Arithmetic mean total return rate on the Standard & Poor's 500 Composite Index - 1926-2004 (1)	12.4 %	12.4 %
2.		Arithmetic mean yield on Aaa and Aa Corporate Bonds 1926-2004 (2)	(6.1)	(6.1)
3.		Historical Equity Risk Premium	<u>6.3</u> %	6.3 %
4		Forecasted 3-5 year Total Annual Market Return (3)	11.0 %	11.0 %
5		Prospective Yield an Aaa Rated Corporate Bonds (4)	(6.2)	(6.2)
6.		Forecasted Equity Risk Premium	4.8 %	4.8 %
7		Average of Historical and Forecasted Equity Risk Premium (5)	5.6 %	5.6 %
8.		Adjusted Value Line Beta (6)	0.68	0.73
9.		Beta Adjusted Equity Risk Premium	3.8 %	4.1 %
Notes:	(1)	From Stocks, Bonds, Bills and Inflation - 2005 Yeart Chicago, IL, 2005.	book Valuation Edition, lbbotson	Associates, Inc.,
	(2)	From Moody's Industrial Manual and Mergent Bond	Record Monthly Update.	

- (3) From page 3 of Schedule PMA-11.
- (4) Average forecast based upon six quarterly estimates of Aaa rated corporate bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated April 1, 2005 (see page 7 of this Schedule). The estimates are detailed below.

Second Quarter 2005	5.7 %
Third Quarter 2005	6.0
Fourth Quarter 2005	6.2
First Quarter 2006	6.3
Second Quarter 2006	6.4
Third Quarter 2006	6.5
Average	6.2 %

- (5) Average of the Historical Equity Risk Premium of 6.3% from Line No. 3 and the Forecasted Equity Risk Premium of 4.8% from Line No. 6 ((6.3% + 4.8%) / 2 = 5.55%, rounded to 5.5%)
- (5) From page 9 of this Schedule.

### 2 ■ BLUE CHIP FINANCIAL FORECASTS ■ APRIL 1, 2005

### Consensus Forecasts Of U.S. Interest Rates And Key Assumptions<sup>1</sup>

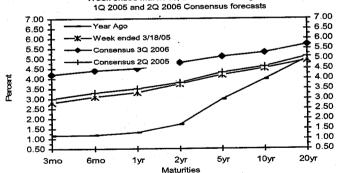
	******			Histo	Cons	ensus I	oreca:	sts-Qua	rterly					
	Av	erage For	Week En			age For M		Latest Q*	2Q	3Q	4Q	1Q	2Q	-3Q_
Interest Rates	Mar.18	Mar.11	Mar.4	Feb.25	Feb.	<u>Jan.</u>	Dec.	<u>10 2005</u>	<u>2005</u>	<u>2005</u>	<u>2005</u>	<u>2006</u>	<u>2006</u>	<u>2006</u>
Federal Funds Rate	2.55	250	2.51	252	250	228	2.16	2.43	3.0	3.4	3.7	3.9	4.1	4.2
Prime Rate	550	550	550	5.50	5.49	5.25	5.14	5.41	6.0	6.4	6.7	6.9	7.1	7.2
LIBOR, 3-mo.	3.03	2.98	2.94	2.88	2.82	2.67	250	2.82	3.2	3.6	4.0	4.2	4.3	4.4
Commercial Paper, 1-mo.	2.68	2.61	2.58	250	2.49	233	2.22	2.48	3.0	3.5	3.8	4.0	4.2	4.3
Treasury bill, 3-mo.	2.80	2.76	2.75	2.69	2.58	237	2.22	257	3.0	3.4	3.7	3.9	4.1	4.2
Treasury bill, 6-mo.	3.10	3.04	3.00	2.94	2.85	2.68	2.50	2.86	3.3	3.6	3.9	4.1	4.3	4.4
Treasury bill, 1 yr.	3.31	3.24	3.20	3.13	303	2.86	267	305	3.5	3.8	4.1	4.3	4.4	4.5
Treasury note, 2 yr.	3.73	3.66	3.58	3.50	3.38	3.22	3.01	3.42	3.8	4.1	4.4	4.5	4.7	4.8
Treasury note, 5 yr.	4.18	4.11	4.00	3.89	3.77	3.71	360	3.86	4.3	4.5	4.7	4.9	5.0	5.1
Treasury note, 10 yr.	4.51	4.45	4.37	4.28	4.17	4.22	423	428	4.6	4.9	5.0	5.2	5.3	5.3
Treasury note, 20 yr.	4.91	4.84	4.79	4.74	4.61	477	488	4.74	5.1	5.3	5.5	5.6	5.7	5.7
Corporate Aaa bond	5.40	5.35	5.34	530	5.20	536	5.47	5.31	5.7	6.0	6.2	6.3	6.4	6.5
Corporate Baa bond	6.05	5.97	5.95	5.91	5.82	602	6.15	5.94	6.4	6.7	6.9	7.0	7.2	7.2
State & Local bonds	4.56	457	4.50	4.42	4.35	4.41	448	4.43	4.7	4.9	5.0	5.2	5.3	5.3
Home mortgage rate	5.95	5.85	5.79	5.69	563	5.71	5.75	5.73	6.1	6.3	6.5	6.7	6.8	6.8
				Histor					Con	sensus	Foreca	ists-Qu	arterly	
	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q*	2Q	3Q	4Q	1Q	2Q	3Q
Key Assumptions	2003	2003	2003	2004	<u>2004</u>	<u>2004</u>	<u>2004</u>	<u> 2005</u>	2005	2005	<u>2005</u>	<u> 2006</u>	<u>2006</u>	<u>2006</u>
Major Currency Index	90.8	90.7	878	853	88.0	86.5	81.9	81.1	80.0	79.4	79.0	79.1	79.1	79.3
Real GDP	4.1	7.4	4.2	4.5	33	4.0	3.8	<i>3.9</i>	3.7	3.6	3.5	3.4	3.4	3.5
GDP Price Index	1.1	1.4	1.6	28	3.2	1.4	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.2
Consumer Price Index	0.7	2.4	0.7	3.5	4.8	1.9	3.4	2.4	2.6	- 2.4	2.5	2.5	2.5	2.5

<sup>1</sup>Individual panel members' forecasts are on pages 4 through 9. Historical data for interest rates except LIBOR is from Federal Reserve Release (FRSR) H 15. LIBOR quotes available from The Wall Street Journal. Definitions reported here are same as those in FRSR H.15. Treasury yields are reported on a constant maturity basis. Historical data for the U.S. Federal Reserve Board's Major Currency Index is from FRSR H 10 and G 5 Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS) \*Interest rate data for 1Q 2005 based on historical data through the week ended March 18. .Data for 1Q 2005 Major Currency Index also is based on data through week ended March 18. Figures shown for 1Q 2005 Real GDP, GDP Chained Price Index and Consumer Price Index are consensus forecasts based on a special question survey this month of the panel members.

2005

### **U.S. Treasury Yield Curve**

Week ended March 18, 2005 and Year Ago vs 1Q 2005 and 2Q 2006 Consensus forecasts



#### **Corporate Bond Spreads**

As of week ended March 18, 2005 400 375 350 325 375 350 325 Baa Corporate Bond Yield minus 10-Year T-Bond 300 275 300 275 250 225 250 225 200 175 200 175 150 150 125 100 125 100 75 50 75 50 Aaa Corporate Bond Yield minus 10-Year T-Bond Yield 25 0 25

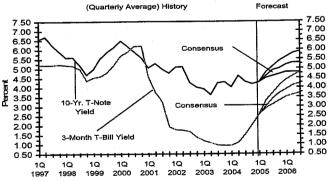
2000 2001

1999

2002

2003

### U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield



#### **U.S. Treasury Yield Curve**

As of week ended March 18, 2005 10-Year T-Bond Yield minus 3-Month T-Bill Yield 2005 1997 2000 2001 2002 2003 2004

Exhibit No. \_\_\_\_ Schedule PMA-10 Page 8 of 9

# Carolina Water Service, Inc. Derivation of Mean Equity Risk Premium Based on a Study Using Holding Period Returns of Public Utilities

			Over A Rated Public Utility Bonds
			AUS Consultants -
Line			Utility Services
No.			Study (1)
	-		1
Time Period			1928-2003
1,		Arithmetic Mean Holding Period	
		Returns (2):	
		Standard & Poor's Public	
		Utility Index	10.8 %
2.		Arithmetic Mean Yield on:	
		A Rated Public Utility Bonds	(6.6)
3.		Equity Risk Premium	4.2 %
Notes:	(1)	S&P Public Utility Index and Moody's Pu Yields 1928-2003, (US Consultants - Util	bilc Utility Bond Average Annual ity Services, 2004)
	(2)	Holding period returns are calculated ba (dividends and interest) plus the relative security over a one-year holding period.	sed upon income received change in the market value of a

Exhibit No. \_\_\_\_ Schedule PMA-10 Page 9 of 9

# Carolina Water Service, Inc. Value Line Adjusted Betas for the Proxy Group of Six AUS Utility Reports Water Companies and the Proxy Group of Three Value Line (Standard Edition) Water Companies

	Value Line Adjusted Beta
Proxy Group of Six AUS Utility Reports Water Companies	
American States Water Co. Aqua America, Inc. Artesian Resources Corp. California Water Service Group Middlesex Water Company York Water Company Average	0.70 0.75 NA 0.75 0.65 0.55
Proxy Group of Three Value Line (Standard Edition) Water	
American States Water Co.	0.70
Aqua America, Inc. California Water Service Group	0.75 0.75
Average	0.73

NA = Not Available

Source of Information: <u>Value Line Investment Survey</u>, January 28, 2005 Standard Edition and Small and Mid-Cap Edition

# Carolina Water Service, Inc. of the Capital Asset Pricing Model for the Proxy Group of Six AUS Utility Reports Water Companies, the Proxy Group of Three Value Line (Standard Edition) Water Companies and the

Line <u>No.</u>		Proxy Group of Six AUS Utility Reports Water Companies Traditional Capital Asset Pricing Model	Proxy Group of Three Value Line (Standard Edition) Water Companies
		Traditional Capital Asset Fricing Model	
1.	Risk-Free Rate (1)	5.5 %	5.5 %
2.	Average Company-Specific Market Premium (2)	4.4	4.7
3.	Capital Asset Pricing Model Derived Company Equity Cost Rate	9.9 %	10.2 %
		Empirical Capital Asset Pricing Model	
4.	Risk-Free Rate (1)	5.5 %	5.5 %
5	Average Company-Specific Market Premium (2)	4.9	5.1
6.	Capital Asset Pricing Model Derived Company Equity Cost Rate	10.4 %	<u>10.6</u> %
<b>7</b> .	Conclusion	<u>10.2</u> %	10.4 %

Notes:

- (1) Developed in note 2 of page 3 of this Schedule.
- (2) Developed on page 2 of this Schedule.

### <u>Carolina Water Service, Inc.</u> Indicated Common Equity Cost Rate Through Use of the Capital Asset Pricing Model

	Value Line Adjusted Beta	Company-Specific Risk Premium Based on Market Premium of 6.4% (1)	CAPM Result Including Risk-Free Rate of 5.5% (2)
	<u>I</u>	raditional Capital Asset Pricing Model (3)	
Proxy Group of Six AUS Utility			
Reports Water Companies			10.0 %
American States Water Co.	0.70	4.5 %	10.0 %
Aqua America, Inc.	0.75	4.8 NA	NA
Artesian Resources Corp.	NA 0.75	1NA 48	10.3
California Water Service Group	0.75 0.65	4.2	9.7
Middlesex Water Company	0.55	3.5	9.0
York Water Company		4.4 %	9.9 % (4)
Average	0.68	4.4 70	
Proxy Group of Three Value Line (Standard Edition) Water Companies			
American States Water Co.	0.70	4.5 %	10.0 %
Aqua America, Inc.	0.75	4.8	10.3
California Water Service Group	0.75	4.8	10.3
Average	0.73	4.7_%	<u>10.2</u> % (4)
,g-			
		to to Driving Model (5)	
		Empirical Capital Asset Pricing Model (5)	L
Proxy Group of Six AUS Utility			
Reports Water Companies			10.5 %
American States Water Co.	0.70	5.0 %	10.7
Aqua America, Inc	0.75	5.2 NA	NA
Artesian Resources Corp	NA 2.75	5.2	10.7
California Water Service Group	0.75	4.7	10.2
Middlesex Water Company	0.65 0.55	4.2	9.7
York Water Company			10.4 % (4)
Average	0.68	<u>4.9</u> %	10.4 % (4)
Proxy Group of Three Value Line (Standard Edition) Water Companies			
American States Water Co	0.70	5.0 %	10 5 %
Aqua America, Inc.	0.75	5 2	10.7
California Water Service Group	0.75	5.2	10.7
Average	0.73	<u>5.1</u> %	<u>10.6</u> % (4)
		<del></del>	

See page 3 for notes

### Carolina Water Service, Inc. Development of the Market-Required Rate of Return on Common Equity Using the Capital Asset Pricing Model for

the Proxy Group of Six AUS Utility Reports Water Companies, and the Proxy Group of Three Value Line (Standard Edition) Water Companies Adjusted to Reflect a Forecasted Risk-Free Rate and Market Return

#### Notes:

(1) From the three previous month-end (Jan. '05 –Mar. '05), as well as a recently available (Mar. 25, 2005), Value Line Summary & Index, a forecasted 3-5 year total annual market return of 11.0% can be derived by averaging the 3-month and spot forecasted total 3-5 year total appreciation, converting it into an annual market appreciation and adding the Value Line average forecasted annual dividend yield.

The 3-5 year average total market appreciation of 43% produces a four-year average annual return of 9.35% (( $1.43^{25}$ ) - 1). When the average annual forecasted dividend yield of 1.60% is added, a total average market return of 10.95%, rounded to 11.0%, (1.60% + 9.35%) is derived.

The 3-month and spot forecasted total market return of 11.0% minus the risk-free rate of 5.5% (developed in Note 2) is 5.5% (11.0% - 5.5%). The Ibbotson Associates calculated market premium of 7.2% for the period 1926-2004 results from a total market return of 12.4% less the average income return on long-term U.S. Government Securities of 5.2% (12.4% - 5.2% = 7.2%). This is then averaged with the 5.5% <u>Value Line</u> market premium resulting in a 6.35%, rounded to 6.4%, market premium. The 6.4% market premium is then multiplied by the beta in column 1 of page 2 of this Schedule.

(2) Average forecast based upon six quarterly estimates of 20-year Treasury Bond yields per the consensus of nearly 50 economists reported in the <u>Blue Chip Financial Forecasts</u> dated March 1, 2005 (see page 7 of Schedule PMA-10). The estimates are detailed below:

	20-Y <u>ear</u>
	Treasury Bond Yield
Second Quarter 2005	5.1%
Third Quarter 2005	5.3
Fourth Quarter 2005	5.5
First Quarter 2006	5.6
Second Quarter 2006	5.7
Third Quarter 2006	<u>5.7</u>
Average	<u>5.5%</u>

(3) The traditional Capital Asset Pricing Model (CAPM) is applied using the following formula:

$$R_S = R_F + \beta (R_M - R_F)$$

Where Rs = Return rate of common stock

R<sub>F</sub> = Risk Free Rate

β = Value Line Adjusted Beta

R<sub>M</sub> = Return on the market as a whole

- (4) Includes only those indicated common equity cost rates which are above 8.6%, i.e., 200 basis points above the prospective yield of 6.6% on A rated Moody's public utility bonds (from page 1 of Schedule PMA-10).
- (5) The empirical CAPM is applied using the following formula:

$$R_S = R_F + 25 (R_M - R_F) + .75 \beta (R_M - R_F)$$

Where R<sub>s</sub> = Return rate of common stock

R<sub>F</sub> = Risk-Free Rate

β = Value Line Adjusted Beta

R<sub>M</sub> = Return on the market as a whole

Source of Information:

Value Line Summary & Index

Blue Chip Financial Forecasts, April 1, 2005

Value Line Investment Survey, January 28, 2005 Standard Edition and Small and Mid-Cap

dition

Stocks, Bonds, Bills and Inflation - Valuation Edition 2005 Yearbook,

Ibbotson Associates, Inc., Chicago, IL, 2005

Carolina Water Service, Inc.
Comparable Earnings Analysis
for a Proxy Group of Ninety-One Non-Utility Companies Comparable to
the Proxy Group of Six AUS Utility Reports Water Companies (1)

				the Proxy Group o	f Six AUS Utility I	Reports Water Cor	npanies (1)		Date of Beturn	on Net Worth			
			Standard						Rate of Return	5-year Aver	age (2)	5-Year Projec	ted (3)
Proxy Group of Ninety-One Non-Utility			Error	Standard						Student's			Student's
Companies Comparable to the Proxy Group of Five	Adj.	Unadj.	of the	Deviation	4000	2000	2001	2002	2003	Percent	T-Test	Percent	T-Test
AUS Utility Reports Water Companies (1)	Beta	Beta	Regression	of Beta	1999					6.7 %	(1.11)	12.5 %	(0.5
21st Century Ins. Group	0.90	0.79	0.4119	4.0793	12.1 %		3.7 %	5 7.4 % 8.2	9.5	11.2	(0.74)	14.0	(0.4
ABM Industries Inc.	0.75	0.60	0.3561	3.6737	13.7	12.5	12.1	30.4	26.6	31.3	0.91	27.5	0.8
Abbott Labs.	0.80	0.64	0.3797	3.6596	34.7	32.5	32.5	27.0	28.8	32.3	0.99	15.5	(0.2
Alliant Techsystems	0.70	0.50	0.2832	4.0134	56.1	34.2	15.5 14.8	14.7	10.0	13.6	(0.54)	15.0	(0.3
Affled Capital Corp.	0.85	0.75	0.4401	3.5729	14.6	13.8 35.1	4.9	10.8	11.2	22.4	0.18	10.0	(0.7
AmerisourceBergen	0.75	0.59	0.3265	4.0313 3.5381	50.0 17.6	12.2	13.8	20.3	15.7	15.9	(0.35)	14.0	(0.4
Annaly Mortgage Mgmt.	0.65	0.47	0.2956			4.9	6.1	6.8	6.2	5.7	(1.19)	10.0	(0.7
Archer Daniels Midi'd	0.70	0.53	0.3344	3.4824 3.4776	4.5 15.8	17.0	14.3	13.1	13.3	14.7	(0.45)	15.0	(0.3
Arrow Int'i	0.60	0.35	0.2321	3.4776	15.8 20.5	20.4	18.2	20.1	19.5	19.7	(0.04)	23.0	0.
Bard (C.R.)	0.75	0.56	0.3426	3.6463	20.5 15.8	17.7	9.6	13.0	10.3	13.3	(0.57)	13.5	(0.
Barnes Group	0.80	0.69	0.4058	3.9372	46.5	36.5	27.3	26.9	20.3	31.5	0.93	13.5	(0.4
Beckman Coulter	0,60	0.32	0.1863	3.5550	21.8	20.1	18.8	19.3	19.6	19.9	(0.02)	20.0	0.
Becton Dickinson	0.75	0.60	0.3677	3.8671	21.6 15.5	25.6	14.3	17.5	17,5	18.1	(0.17)	16.5	(0.
Berry Petroleum 'A'	0.75	0,55	0.3187	3,8071	24.3	23.0	16.5	16.9	17.0	19.5	(0.06)	14.0	(0,
Blyth Inc.	0.80	0.65	0.3654	3.5112	24.3 12.3	11.1	12.5	13.4	11.4	12.1	(0.66)	11.0	(0.6
Bob Evans Farms	0.80	0.69	0.4167	3.5112		24.0	23.6	22.6	22.1	22.8	0.21	21.5	0.
C.H. Robinson	0.85	0.72	0.3879	3,9979	21.6 16.8	16.6	15.3	14.8	14.7	15.6	(0.38)	13.5	(0.
CLARCOR Inc.	0.85	0.72	0.4486 0.4047	3,3560 4,0351	16.8 12.8	10.3	8.6	9.8	8.3	10.0	(0.84)	13.5	(0.
Casey's Gen'i Stores	0.85	0.76		3,9438	18.6	20.9	19.1	19.4	17.9	19.2	(0.08)	14.5	(0
Church & Dwight	0.50	0.22	0,1313 0,2372	3,9350	24.9	23.4	20.2	23.8	42.3	26.9	0.55	93.5 (4)	6.
Clorox Co.	0,65	0.41		3,4979		39.4	35.0	34.7	34.0	35.4	1.25	33.5	1.
Coca-Cola	0.60	0.35	0.2301	3,4879	34.0 14.7	9.5	38.5	69.0	58.5	38.0	1.46	41.0 (4)	2
Coca-Cola Bottling	0.55	0.25	0.1472			27.0	17.1	18.2	18.2	20.9	0.06	18.0	(0
ConAgra Foods	0.70	0.47	0.3242	3.2512	23.9	15.8	14.4	16.4	11.2	14.7	(0.45)	12.5	(0
Constellation Brands	0.70	0.51	0.2791	4.0924	15.5	6.4	6.7	7.6	8.3	7.3	(1.06)	11.0	(0)
Corn Products Int'l	0.80	0.67	0.4110	3.5055 3.6307	7.5 12.3	13.1	11.6	10.1	10.9	11.6	(0.70)	12.0	(0.
Curtiss-Wright	0.70	0.49	0.3048	3,6241	20.5	20.1	8.5	17.0	12.6	15.7	(0.37)	10.5	(0.
Dean Foods	0.65	0.43	0.2663	3.2454	19.2	19.4	18.0	17.5	15.4	17.9	(0.19)	12.5	(0.
Dentsply Int'l	0.75	0.56	0.3780	3,5554	34.7	28.7	24.5	21.0	19.7	25.7	0.45	23.0	0.
Dionex Corp.	0.85	0.76	0.4474 0.3729	3.8928	3.5	5.4	6.1	7.1	12.0	6.8	(1.10)	12.5	(0.
ESCO Technologies	0.80	0.67		3.5528	22.2	21.3	29.6	38.6	31.7	28.7	0.70	23.0	0.
Fannie Mae	0.85	0.77	0.4535			17.1	17.8	21.2	20.9	17.9	(0.19)	16.0	(0.
Fortune Brands	0.80	0.69	0.4287	3,4311 3,9388	12.4 27.8	20.9	22.0	21.0	17.9	21.9	0.14	17.5	(0.
Franklin Electric	0.70	0.48	0.2766	3,6309	22.5	23.6	20.8	20.2	16.7	20.8	0.05	15.0	(0.
Gen'i Dynamics	0.80	0.66	0.3932 0.2591	3,6925	41.2	65.0	48.9	53.5	61.8	54.1 (4)	2.78	38.5 (4)	1
Gillette	0.65	0.42		3.4819	13.0	10.7	11.8	16.1	18.8	14.0	(0.51)	17.5	(0
Golden West Fin'l	0,85	0.72	0.4375	3,2703	19.8	18.5	15.2	14.1	13.8	16.3	(0.32)	18.0	(0)
HON Industries inc.	0.85	0.74	0.4678 0.3082	3,2703	25.3	16.7	19.3	22.4	22.0	21.1	0.07	15.5	(0
Harland (John H.)	0.75	0.55		3.6591	22.0	23.7	25.8	32.0	26.9	26.1	0.48	18.5	
int'i Flavors & Frag.	0.75	0.55	0.3341 0.4299	3.4993	15.1	15.8	13.5	11.6	10.0	13.2	(0.57)	12.0	(0
Invacare Corp.	0.85	0.71		3.4993		72.6	61.1	79.4	54.5	68.4 (4)	3.95	27.5	C
Kellogg	0.55	0.31	0.2109	3,4623	74.5 22.9	24.6	19.6	16.6	16.1	20.0	(0.02)	15.5	(0
Lancaster Colony	0.80	0.63	0.3951	3,7962	13.7	12.6	13.4	11.0	13.1	12.8	(0.61)	15.5	(0
Lance Inc.	0.75	0.56	0.3274	3.7862	15.9	16.3	8.7	7.7	9.7	11.7	(0.70)	14.5	(0
Lawson Products	0.70	0.48	0.2955	3,9591	20.7	19.3	16.8	17.2	11.7	17.1	(0.25)	16.0	(0
Lincoln Elec Hidgs.	0.85	0.75	0.4083	3,9591	20.7 9.0	6.0	10.8	18.0	15.6	11.9	(0.68)	21.0	•
Lockheed Martin	0.65	0.44	0.2687	3.2788	9.0 9.0	27.0	26.7	11.1	16.7	18.1	(0.17)	12.5	((
Marathon Oil Corp.	0.85	0.76	0.4784			20.9	20.7	24.6	24.9	20.0	(0.02)	20.5	(
Mattel inc.	0.75	0.58	0.3217	4.0079 3.5042	9.3	22.0	21.0	21.1	17.5	20.7	0.04	15.0	(6
Matthews Int'l	0.65	0.45	0.2868	3.5042 3.5360	21.8	23.4	23.0	21.8	22.0	23.0	0.23	20.0	,
Medtronic Inc.	0.85	0.74	0,4403		24.7	24.3	17.6	6.4	13.1	14.2	(0.49)	9.5	(1
Murphy Oil Corp.	0.85	0.75	0.4124	3.9141	9.4	24.3 18.5	13.1	20.5	20.2	17.9	(0.19)	22.0	(
Newell Rubbermaid	0.85	0.74	0.4033	3.9624	17.2		5.5	4.8	4.8	9.2	(0.90)	10.0	(6
Northrop Grumman	0.65	0.39	0.2410	3,7158	14.8	15.9		16.2	20.3	19.0	(0.10)	15.5	(0
Occidental Petroleum	0.85	0.76	0.4826	3.2566	7.3	27.8	23.6	10.2	20.5	,	()		

# Exhibit No. \_\_\_\_\_ Schedule PMA-12 Page 2 of 6

Carolina Water Servics, Inc.
Comparable Earnings Analysis
for a Proxy Group of Ninety-One Non-Utility Companies Comparable to
the Proxy Group of Six AUS Utility Reports Water Companies.(1)

				the Proxy Group of S	SIX AUS UTILITY I	Reports vvaler Co	omparties (1)		D-46 D-4-	Nat Madb			
			Standard	-					Rate of Retu	rn on Net Worth 5-year Aver	age (2)	5-Year Proje	cted (3)
Proxy Group of Ninety-One Non-Utility			Error	Standard						J year Aven	Student's		Student's
Companies Comparable to the Proxy Group of Five	Adj.	Unadj.	of the	Deviation	4000	2000	2001	2002	2003	Percent	T-Test	Percent	T-Test
AUS Utility Reports Water Companies (1)	Beta	Beta	Regression	of Beta	1099					14.5	(0.47)	17.0	(0.14)
Pactiv Corp.	0.85	0.76	0.4316	3.7478	7.1	9.3	9.8	24.5	21.7 23.0	26.3	0.50	17.0	(0.14)
Papa John's Int'l	0.75	0.55	0.3153	3.8794	17.4	28.5	24.2	38.4	56.5	47.6 (4)	2.25	52.0 (4)	3.05
People's Bank	0.85	0.71	0.0837	3.1527	42.7	41.8	46.4	50.8	9.8	7.5	(1.04)	10.5	(0.73)
PepsiAmericas Inc.	0.75	0.59	0.3614	3,5677	6.2	5.8	6.3	9.4 47.9	9.6 19.5	38.3	1.48	22.0	0.32
Pfizer Inc.	0.80	0.67	0.0840	3.1614	38.2	40.4	45.6	47.9 36.9	35.4	35.5	1.25	27.5	0.82
Procter & Gamble	0.55	0.26	0.1484	4.0024	34.4	34.4	36.6	36.9 16.2	13.2	17.1	(0.25)	9.5	(0.82)
Quaker Chemical	0.80	0.67	0.3751	3.8905	19.0	20.2	16.8 9.9	12.3	13.0	11.4	(0.72)	12.0	(0,59)
Ralcorp Holdings	0.55	0.31	0.2162	3.3069	11.2	10.8	15.0	17.0	18.5	16.6	(0.30)	19.5	0.09
Renal Care Group	0.60	0.38	0.2279	3.7875	16.8	15.9		12.6	11.3	12.6	(0.62)	14.5	(0.36)
Republic Services	0.70	0.54	0.3023	3.9962	13.8	13.4	12.1	12.3	12.1	11.5	(0.71)	13.0	(0.50)
Ruddick Corp.	0.85	0.75	0.4335	3.6577	11.4	10.8	10.8	15.7	14.0	14.7	(0.45)	11.0	(0.68)
Ryan's Family	0.80	0.65	0.3520	4.0653	14.7	14.9	14.2 37.3	31.9	33.3	37.0	1.38	26.5	0.73
SLM Corporation	0.75	0.59	0.3760	3.3902	47.9	34.8		63.8	59.1	80.6 (4)	4.95	32.5	1.27
Sara Lee Corp.	0.60	0.37	0.2584	3.2494	88.3	92.0	99.9			6.5	(1.12)	12.5	(0.55)
Selective ins. Group	0.85	0.73	0.4223	3.6580	9.4	4.6	4.5	6.1	7.7	16.0	(0.34)	12.0	(0.59)
Sensient Techn.	0.80	0.64	0,3888	3.5476	18.6	16.7	15.1	16.2	13.4	15.5	(0.39)	19.5	0.09
ServiceMaster Co.	0.75	0.59	0.3543	3.6403	18.6	15.9	9.4	14.0	19.4	15.9	(0.35)	14.5	(0.36)
Sigma-Aidrich	0.80	0.68	0.4221	3.4485	11.8	16,2	17.4	14.8	19.3	11.3	(0.73)	10.0	(0.77)
Smucker (J.M.)	0.65	0.40	0.2445	3.6918	11.4	13.4	12.2	9.3	10.0			15.0	(0.32)
Sonic Corp.	0.70	0.54	0.3002	4.0245	18.3	21.0	19.4	20.7	19.7	19.8	(0.03)	17.0	(0.14)
St. Jude Medical	0.85	0.75	0.3986	4.0631	18.1	16.6	17.2	17.5	21.2	18.1	(0.17)	18.5	(0.14)
Standex int'l	0,80	0.69	0.4117	3.6094	18.9	18.5	14.5	11.4	11.1	14.9	(0.43)	26.5	0.73
Stryker Corp.	0.70	0.53	0.3281	3.6128	23.9	25.9	25.7	23.8	21.0	24.1	0.32	28.5	0.73
Sysco Corp.	0.80	0.65	0.4066	3.4073	25.4	25.8	27.8	31.9	35.4	29.3	0.75	10.0	(0.77)
Tecumseh Products 'A'	0.80	0.68	0.3874	3.7838	13.1	6.6	4.4	5.5	3.8	6.7	(1.11)	12,0	(0.77)
Tennant Co.	0.80	0.67	0.4003	3.5757	17.7	18.2	3.1	8.0	8.5	11.1	(0.75)	6.5	(1.09)
Thomas inds.	0.75	0.59	0.3475	3.7626	12.5	13.5	11.9	10.4	9.4	11.5	(0.71)		(0.41)
Thornburg Mtg.	0.70	0.53	0.3317	3.5147	8.2	9.2	11.0	14.4	14.2	11.4	(0.72)	14.0 30.0	1.05
UnitedHealth Group	0.65	0.44	0.2565	3.9340	14.6	19.1	23.5	30,5	35.6	24.7	0.37		(0.14)
Universal Corp.	0.70	0.47	0.3156	3.3252	23.6	23.7	21.4	18.1	18.3	21.0	0.07	17.0	1.41
Varian Medical Sys.	0.80	0.68	0.3743	3.9647	4.5	19.6	17.2	19.8	23.2	16.9	(0.27)	34.0	0.32
WD-40 Co.	0.75	0.58	0.3145	4.1031	39.3	38.9	30.6	30.5	27.9	33.4	1.08	22.0	0.32
Wal-Mart Stores	0.85	0.77	0.0849	3,1983	22.1	20.1	19.1	20.4	20.3	20.4	0.02	25.5	
Walgreen Co.	0.80	0.65	0.3950	3,5554	17.9	17.9	16.7	16.3	16.1	17.0	(0.26)	17.0	(0.14)
Wendy's Int'l	0.75	0.56	0.3153	3.9640	15.6	16.1	18.8	15.1	13.4	15.8	(0.36)	14.5	(0.36)
West Pharmac. Svcs.	0.70	0.51	0,3165	3.6171	15.7	8.3	11.8	6.4	10.6	10.6	(0.79)	12.5	(0.55)
			0.3349	3,6715									
Average for the Non-Utility Group	0.75	0.58	0.3349	3,0715									
Average for the Proxy Group of Six AUS													
Utility Reports Water Companies	0.68	0.47	0.0986	3.6278 (5)									
Mean										18.2%		17.1%	
(Mode)											17.7% (6	`	
Conclusion (6)											17.778 (0)	,	
·										14.9%		14.0%	
Conservative Mean (7)													
Conservative Conclusion (8)											14.5% (8	)	

See pages 5 and 6 for notes.

Carolina Water Service, Inc.
Comparable Earnings Analysis
for a Proxy Group of Ninety Non-Utility Companies Comparable to
the Proxy Group of Three Value Line (Standard Edition) Water Companies (9)

			Standard						Mate of Metal	n on Net Worth	5-Year Projected (3)		
			Error	Standard						5-year Average (2)		5-Teal Flujeu	Student's
Proxy Group of Ninety Non-Utility	Adi.	Unadj.	of the	Deviation							Student's		T-Test
Companies Comparable to the Proxy Group of Three	Auj. Beta	Beta	Regression	of Beta	1999	2000	2001	2002	2003	Percent	T-Test	Percent	
Value Line (Standard Edition) Water Companies (9)				3.8737	13.7 %	12.5 %	12.1 %	8.2 %	9.5 %	11.2 %	(0.65)	14.0 %	(0.36
ABM Industries Inc.	0.75	0.60	0.3561			32.5	32.5	30.4	26.6	31.3	1.00	27.5	0.94
Abbott Labs.	0.80	0.64	0.3797	3,6596	34.7	17.2	11.7	11.7	12.6	14.0	(0.42)	14.0	(0.36
Albemarle Corp.	0.90	0.83	0,5326	3.1053	16.6	13.8	14.8	14.7	10.0	13.6	(0.45)	15.0	(0.20
Allied Capital Corp.	0.85	0.75	0.4401	3.5729	14.6	12.2	13.8	20.3	15.7	15.9	(0.28)	14.0	(0.3
Annaly Mortgage Mgmt.	0.65	0.47	0.2956	3.5381	17.6		6.1	6.8	6.2	5.7	(1.10)	10.0	(0.7
Archer Daniels Midl'd	0.70	0.53	0.3344	3.4824	4.5	4.9	14.3	13.1	13.3	14.7	(0.36)	15.0	(0.2
Arrow Int'i	0.60	0.35	0.2321	3.4776	15.8	17.0	21.0	32.3	29.4	22.9	0.31	22.0	0.4
Ball Corp.	0.90	0.79	0.4467	3.7010	15.1	16.6		20.1	19.5	19.7	0.05	23.0	0.5
Bard (C.R.)	0.75	0.56	0.3426	3.5753	20.5	20.4	18.2	13.0	10.3	13.3	(0.48)	13.5	(0.4
Barnes Group	0.80	0.69	0.4058	3.6463	15.8	17.7	9.6		20.3	31.5	1.02	13.5	(0.4
Beckman Coulter	0.60	0.32	0.1863	3.9372	46.5	36.5	27.3	26.9		19.9	0.07	20.0	0.2
Becton Dickinson	0.75	0.60	0.3677	3.5550	21.8	20.1	18.8	19.3	19.6	18.1	(0.08)	16.5	(0.
Berry Petroleum 'A'	0.75	0.55	0.3187	3.8671	15.5	25.6	14.3	17.5	17.5		0.03	14.0	(0.3
	0.80	0.65	0,3654	3.9088	24.3	23.0	16.5	16.9	17.0	19.5		11.0	(0.0
Blyth Inc.	0.80	0.69	0.4167	3.5112	12.3	11.1	12.5	13.4	11.4	12.1	(0.57)	13.5	(0.
Bob Evans Farms	0.85	0.72	0.4486	3,3560	16.8	16.6	15.3	14.8	14.7	15.6	(0.29)	14.0	(0.
CLARCOR Inc.	0.85	0.82	0.4498	3.8229	19.1	16.1	16.3	19.1	16.1	17.3	(0.15)	14.0 14.5	(0.
ChoicePoint Inc.	0.90	0.78	0.5114	3.0650	18.9	17.7	16.4	16.3	15.3	16.9	(0.18)		7.
City National Corp.		0.76	0.2372	3,9350	24.9	23.4	20.2	23.8	42.3	26.9	0.64	93.5 (4)	
Clorox Co.	0.65 0.60	0.35	0.2372	3.4979	34.0	39.4	35.0	34.7	34.0	35.4	1.34	33.5	1. 0.
Coca-Cola			0.3242	3,2512	23.9	27.0	17.1	18.2	18.2	20.9	0.15	18.0	
ConAgra Foods	0.70	0.47	0.5079	3.0562	10.5	28.4	11.4	5.1	13.4	13.8	(0.43)	7.0	(1.
ConocoPhillips	0.85	0.77		3,5055	7.5	6.4	6.7	7.6	8.3	7.3	(0.97)	11.0	(0.
Com Products int'i	08.0	0.67	0.4110			13,1	11.6	10.1	10.9	11.6	(0.61)	12.0	(0
Curtiss-Wright	0.70	0.49	0.3048	3.6307	12.3	20.1	8.5	17.0	12.6	15.7	(0.28)	10.5	(0.
Dean Foods	0.65	0.43	0,2663	3.6241	20.5		18.0	17.5	15.4	17.9	(0.10)	12.5	(0.
Dentsply int'l	0.75	0.56	0.3780	3.2454	19.2	19.4		21.0	19.7	25.7	0.54	23.0	0.
Dionex Corp.	0.85	0.76	0.4474	3,5554	34.7	28.7	24.5	7.1	12.0	6.8	(1.01)	12.5	(0.
ESCO Technologies	0.80	0.67	0.3729	3.8928	3.5	5.4	6.1		31.7	28.7	0.79	23.0	0.
Fannie Mae	0.85	0.77	0.4535	3.5528	22.2	21.3	29.6	38.6		17.9	(0.10)	16.0	(0.
Fortune Brands	0.80	0.69	0.4287	3.4311	12.4	17.1	17.8	21.2	20.9	21.9	0.23	17.5	(0
	0.70	0.48	0.2786	3,9388	27.8	20.9	22.0	21.0	17.9		0.14	15.0	(0
Franklin Electric	0.80	0,66	0.3932	3,6309	22.5	23. <del>6</del>	20.8	20.2	16.7	20.8		38.5 (4)	2
Gen'i Dynamics	0.65	0.42	0.2591	3.6925	41.2	65.0	48.9	53.5	61.8	54.1 (4)	2.87	17.5	(0
Gillette	0.85	0.72	0.4375	3,4819	13.0	10.7	11.6	16.1	18.8	14.0	(0.42)		0
Golden West Fin'l	0.85	0.74	0.4678	3.2703	19.8	18.5	15.2	14.1	13.8	18.3	(0.23)	18.0 16.6	(0
HON Industries Inc.	0.85	0.60	0.4094	3,1534	17.7	18.7	17.7	19.8	21.1	19.0	(0.01)		(0
Hillenbrand Inds.		0.81	D.4745	3,5333	14.2	13.6	12.9	11.2	11.1	12.6	(0.53)	14.5	(0
IHOP Corp.	0.90		0.3341	3,6591	22.0	23.7	25.8	32.0	26.9	26.1	0.57	18.5	
Int'l Flavors & Frag.	0.75	0.55	0.4299	3.4993	15.1	15.8	13.5	11.6	10.0	13.2	(0.48)	12.0	(0
invacare Corp.	0.85	0.71		3,3497	74.5	72.6	61,1	79.4	54.5	68.4 (4)		27.5	
Kellogg	0.55	0.31	0.2109	3.4623	22.9	24.6	19.6	16.6	16.1	20.0	0.07	15.5	(0
Lancaster Colony	0.80	0.63	0.3951		13.7	12.6	13.4	11.0	13.1	12.8	(0.52)	15.5	(0
Lance Inc.	0.75	0.56	0.3274	3,7962		20.7	20.3	15.8	18.7	19.3	0.02	26.5	(
Lauder (Estee)	0.90	0.81	0.4464	3.8321	21.2	16.3	8.7	7.7	9.7	11.7	(0.61)	14.5	(0
Lawson Products	0.70	0.48	0.2955	3,6597	15.9		16.8	17.2	11.7	17.1	(0.16)	16.0	(1
Lincoin Elec Hidgs.	0.85	0.75	0.4083	3.9591	20.7	19.3		18.0	15.6	11.9	(0.59)	21.0	
Lockheed Martin	0.65	0.44	0.2687	3.7286	9.0	6.0	10.8		16.7	18.1	(0.08)	12.5	(
Marathon Oil Corp.	0.85	0.76	0.4784	3.2788	9.0	27.0	26.7	11.1	17.5	20.7	0.13	15.0	(
Matthews Int't	0.65	0.45	0.2868	3.5042	21.8	22.0	21.0	21.1		23.0	0.32	20.0	
	0.85	0.74	0.4403	3.5360	24.7	23.4	23.0	21.8	22.0	23.0 11.9	(0.59)	16.0	(
Medtronic Inc.	0.90	0.82	0.5172	3.2030	14.7	10.6	9.8	10.2	14.1		(0.40)	9.5	ì
Mercury General	0.85	0.75	0.4124	3,9141	9.4	24.3	17.6	6.4	13.1	14.2		8.0	ì
Murphy Oil Corp.	0.65		0,3230	3.0607	9.2	7.9	7.0	7.8	8.1	8.0	(0.91)	10.0	ì
New Plan Excel R'ity	0.65		0.2410	3,7158	14.8	15.9	5.5	4.8	4.8	9.2	(0.81)		(
Northrop Grumman			0.4826	3,2566	7.3	27.8	23.6	16.2	20.3	19.0	(0.01)	15.5	(
Occidental Petroleum	0.85		0.4316	3,7478	7.1	9.3	9.8	24.5	21.7	14.5	(0.38)	17.0	(
Pactiv Corp.	0.85	0.76	0.4316	3.74/0	7.1	0.0							

14.0%

14.7%

16.8%

8

14.4%

(0.07) (0.68) (0.78) (0.78) (0.78) (0.78) (0.78) (0.78) (0.74) (0 (1.03) (0.26) (0.26) (0.34) (0.34) (0.34) (0.68) (0.68) (0.63) (0 Rate of Return on Net Worth
5-year Average (2)
Student's 3 Ŧ 8.3 7.5 7.5 53.8 17.1 17.1 11.4 16.6 16.6 37.0 80.6 Percent Carolina Water Service. Inc.
Comparable Earlings Analysis
for a Proxy Group of Vinety Non-Utility Companies Comparable to
the Proxy Group of Three Value Line (Standard Edition) Water Companies (9) 6.3 45.6 62.4 10.1 16.8 38.2 38.7 17.7 19.0 3.5004 ( 0.0930 0.53 0.66 0.68 0.67 0.59 0.53 0.75 0.77 0.77 0.65 0.55 0.80 0.75 0.70 0.85 0.86 0.70 0.90 0.90 0.86 0.86 0.73 Proxy Group of Ninety Non-Utility Companies Comparable to the Proxy Group of Three Value Line (Standard Edition) Water Companies (9) Average for the Proxy Group of Three Value Line (Standard Edition) Water Companies Average for the Non-Utility Group /sco Corp. scumseh Products 'A' Selective Ins. Group Sensient Techn. ServiceMaster Co. Sigma-Aldrich Walgreen Co. West Pharmac. Svos. Renat Care Group People's Bank PepsiAmericas Inc. Pfizer Inc. einsurance Group JnitedHealth Group Protective Life Quaker Chemical Ruddick Corp. SLM Corporation Val-Mart Stores Papa John's Int'l रेंL! Corp. रबाटorp Holdings Smucker (J.M.) Standex Int'l Jniversal Corp. omburg Mtg. sara Lee Corp Pitney Bowes ennant Co. homas Inds. ryker Corp.

See pages 6 and 7 for notes.

Conservative Conclusion (8)

Conservative Mean (7)

Conclusion (6)

### Carolina Water Service, Inc. Comparable Earnings Analysis

- Notes: (1) The criteria for selection of the proxy group of ninety-one non-utility companies was that the non-utility companies be domestic and have a meaningful rate of return on net worth, common equity or partners' capital for each of the five years ended 2003 or projected 2007 2009 as reported in Value Line Investment Survey (Standard Edition). The proxy group of ninety-one non-utility companies was selected based upon the proxy group of six AUS Utility Reports water companies' unadjusted beta range of 0.17 0.77 and standard error of the regression range of 3.1496— 4.1060. These ranges are based upon plus or minus three standard deviations of the unadjusted beta and standard error of the regression as detailed in Ms. Ahern's direct testimony. Plus or minus three standard deviations captures 99.73% of the distribution of unadjusted betas and standard errors of the regression.
  - (2) Ending 2003.
  - (3) 2007-2009.
  - (4) The Student's T-statistic associated with these returns exceeds 1.96 at the 95% level of confidence. Therefore, they have been excluded, as outliers, to arrive at proper mean historical and projected returns as fully explained in Ms. Ahern's testimony.
  - (5) The standard deviation of group of six AUS Utility Reports water companies' standard error of the regression is 0.1594. The standard deviation of the standard error of the regression is calculated as follows:

Standard Deviation of the Std. Err. of the Regr. = Standard Error of the Regression /2N

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

Thus, 
$$0.1594 = 3.6278 = 3.6278$$
 $/518 = 22.7596$ 

- (6) Mid-point of the arithmetic mean of the historical five year average and five year projected rate of return on net worth.
- (7) Arithmetic mean of historical five year rates of return and five year projected rates of return on net worth, common equity or partners' capital excluding those 20% and above as well as those below 8.6%, i.e., 200 basis points above the prospective yield of 6.6% on A rated Moody's public utility bonds (from page 1 of Schedule PMA-10.)
- (8) Mid-point of the arithmetic mean of historical five year rates of return and five year projected rates of return on net worth, common equity or partners' capital excluding those 20% and above as well as those below 8.6%, i.e., 200 basis points above the prospective yield of 6.6% on A rated Moody's public utility bonds (from page 1 of Schedule PMA-10.)
- (9) The criteria for selection of the proxy group of ninety non-utility companies was that the non-utility companies be domestic and have a meaningful rate of return on net worth, common equity or partners' capital for each of the five years ended 2003 or projected 2007 2009 as reported in Value Line Investment Survey (Standard Edition). The proxy group of ninety non-utility companies was selected based upon the proxy group of three Value Line (Standard Edition) water companies' unadjusted beta range of 0.27 0.83 and standard error of the

Exhibit No. \_\_\_\_ Schedule PMA-12 Page 6 of 6

### <u>Carolina Water Service, Inc.</u> <u>Comparable Earnings Analysis</u>

regression range of 3.0390– 3.9618. These ranges are based upon plus or minus three standard deviations of the unadjusted beta and standard error of the regression as detailed in Ms. Ahern's direct testimony. Plus or minus three standard deviations captures 99.73% of the distribution of unadjusted betas and standard errors of the regression.

(10) The standard deviation of the proxy group of three Value Line (Standard Edition) water companies' standard error of the regression is 0.1538 (3.5004 / 22.7596).

Source of Information: Value Line, Inc., March 15, 2005

Value Line Investment Survey (Standard Edition)